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Dominion®

VIA HAND DELIVERY

November 6, 2015

Mr. Joel H. Peck, Clerk
c/o Document Control Center
State Corporation Commission
1300 East Main Street
Tyler Building – First Floor
Richmond, Virginia 23219

Application of Virginia Electric and Power Company for approval and certification of electric facilities: Haymarket 230 kV Double Circuit Transmission Line and 230-34.5 kV Haymarket Substation
Case No. PUE-2015-00107

Dear Mr. Peck:

Enclosed for filing are an unbound original and fifteen (15) copies of Virginia Electric and Power Company's application for approval of electric facilities. This filing contains the Application, Appendix, DEQ Supplement, Direct Testimony and Exhibits.

As indicated in Section II.A.9.b of the Appendix contained in the enclosed filing, three (3) copies of a map showing the proposed route of the transmission line project described in the application were hand delivered to the Commission's Division of Energy Regulation today. The Company also delivered to the Division of Energy Regulation today a CD-ROM containing the digital geographic information system (GIS) map required by Virginia Code § 56-46.1, which is Attachment II.A.2 to the Appendix contained in the enclosed filing.

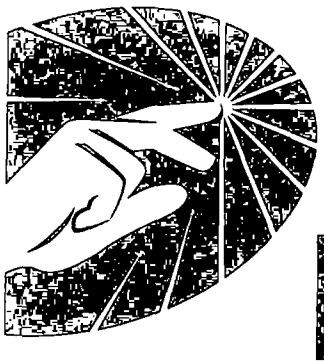
If you have any questions regarding this matter, please do not hesitate to contact me.

Sincerely,

Charlotte P. McAfee
Senior Counsel

Enclosures

cc: William H. Chambliss, Esq.
Vishwa B. Link, Esq.
All federal, state and local agencies and officials listed in Section V.C. of the Appendix



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Application, Appendix, DEQ Supplement, Direct Testimony and Exhibits of Virginia Electric and Power Company

Before the State Corporation Commission of Virginia

Haymarket 230 kV Double Circuit Transmission Line and 230-34.5 kV Haymarket Substation

Application No. 272

Case No. PUE-2015-00107

Filed: November 6, 2015

Volume 1 of 2

Application

COMMONWEALTH OF VIRGINIA
BEFORE THE
STATE CORPORATION COMMISSION

APPLICATION OF

VIRGINIA ELECTRIC AND POWER COMPANY

FOR APPROVAL AND CERTIFICATION
OF ELECTRIC FACILITIES

Haymarket 230 kV Double Circuit Transmission Line
and 230-34.5 kV Haymarket Substation

Application No. 272

Case No. PUE-2015-00107

Filed: November 6, 2015

COMMONWEALTH OF VIRGINIA
BEFORE THE
STATE CORPORATION COMMISSION

Application of	)	
	)	
Virginia Electric and Power Company	)	**Case No. PUE-2015-00107**
	)	
For approval and certification of electric transmission facilities under Va. Code § 56-46.1 and the Utility Facilities Act, Va. Code § 56-265.1 *et seq.*	)	

APPLICATION OF VIRGINIA ELECTRIC AND POWER COMPANY FOR APPROVAL AND CERTIFICATION OF ELECTRIC FACILITIES FOR HAYMARKET 230 KV DOUBLE CIRCUIT TRANSMISSION LINE AND 230-34.5 KV HAYMARKET SUBSTATION

Virginia Electric and Power Company ("Dominion Virginia Power" or the "Company") respectfully shows as follows:

1. Dominion Virginia Power is a public service corporation organized under the laws of the Commonwealth of Virginia furnishing electric service to the public within its Virginia service territory. The Company also furnishes electric service to the public in portions of North Carolina. Dominion Virginia Power's electric system, consisting of facilities for generation, transmission and distribution of electric energy, is interconnected with the electric systems of neighboring utilities, and is a part of the interconnected network of electric systems serving the continental United States. By reason of its operation in two states and its interconnections with other utilities, the Company is engaged in interstate commerce.

2. In order to perform its legal duty to furnish adequate and reliable electric service, Dominion Virginia Power must, from time to time, replace and construct new transmission facilities in its system. The electric facilities proposed in this application are

necessary so that Dominion Virginia Power can provide service requested by a retail electric service customer (the "Customer") for a new data center campus in Prince William County, Virginia and maintain reliable electric service to its customers in the area in accordance with mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards for transmission facilities and the Company's planning criteria.

3. Accordingly, the Company proposes to (i) convert its existing 115 kV Gainesville-Loudoun Line #124, located in Prince William and Loudoun Counties, to 230 kV operation; (ii) construct in Prince William County, Virginia and the Town of Haymarket, Virginia a new 230 kV double circuit transmission line to run approximately 5.1 miles from a tap point approximately 0.5 mile north of the Company's existing Gainesville Substation on the converted Line #124 ("Haymarket Junction") to a new 230-34.5 kV Haymarket Substation (the "Haymarket Loop"); and (iii) construct a 230-34.5 kV Haymarket Substation on land in Prince William County to be owned by the Company (Line #124 conversion, the Haymarket Loop and Haymarket Substation, collectively, the "Project").

4. The Company did not receive any request from the affected localities to enter into an agreement for payment by one or both localities of the incremental costs of underground construction of the Project pursuant to Va. Code § 15.2-2404 F.

5. The proposed new facilities must be in service by summer (commencing June 1) of 2018 to serve the Customer's development at the Haymarket Campus in Prince William County, Virginia. The necessity for the proposed Project is described in more detail in Section I of the Appendix attached to this application.

6. The proposed Haymarket Loop will be constructed on new right-of-way using double circuit, single-shaft galvanized steel poles with three twin-bundled 795 ACSR 26/7

phase conductors with a summer transfer capability of 1225 MVA. The approximate size of the structures, the materials to be used to construct the Project, and the right-of-way clearing methods, corridor usage and maintenance procedures are described in Section II of the Appendix. The proposed facilities will meet or exceed the standards of the National Electrical Safety Code in effect at the time of construction.

7. As noted above, the in-service date for the proposed facilities is summer (commencing June 1) 2018, with an estimated 12 months for construction of the Project and a period of 12 months for engineering, material procurement, right-of-way acquisition and construction permitting. The estimated cost of the Project is approximately $50.9 million (2015 dollars), of which approximately $30.2 million is for transmission line construction, approximately $20.8 million is for station work.

8. The proposed facilities will afford the best means of meeting the continuing need for reliable service while reasonably minimizing adverse impact on the scenic, environmental and historic assets of the area. The Project is located on new right-of-way and will therefore require new easements. If there is an opportunity to co-locate along an adjacent right-of-way such as a roadway, gas pipeline, railroad or existing transmission or distribution lines, it may be possible for the Company to reduce the width of new right-of-way. The Company has identified a proposed route and four alternative routes for the Commission's consideration. The proposed transmission line route and four alternative routes are described in Section III of the Appendix.

9. Based on consultations with the Virginia Department of Environmental Quality ("DEQ"), the Company has developed a supplement ("DEQ Supplement") containing information designed to facilitate review and analysis of the proposed facilities by the DEQ

and other relevant agencies. The DEQ Supplement is attached to this application, as is a Route Selection Report.

10. Dominion Virginia Power's experience, the advice of consultants and a review of published studies by experts in the field have disclosed no causal link to harmful health or safety effects from electric and magnetic fields generated by the Company's existing or proposed facilities. For further discussion of this topic, *see* Section IV of the Appendix.

11. A list of federal, state and local agencies and officials that reasonably may be expected to have an interest in the proposed construction, and to which a copy of the application will be sent, is set forth in Section V of the Appendix.

12. In addition to the information provided in the Appendix, the DEQ Supplement and the Route Selection Report, this application is supported by the prepared direct testimony of Company witnesses Mark R. Gill, Harrison S. Potter, Robert J. Shevenock II, Wilson O. Velazquez, Diana T. Faison and Jeffrey R. Thommes filed with this application.

[INTENTIONALLY LEFT BLANK]

WHEREFORE, Dominion Virginia Power respectfully requests that the Commission:

(a) direct that notice of this application be given as required by § 56-46.1 of the Code of Virginia;

(b) approve pursuant to § 56-46.1 of the Code of Virginia the construction of the proposed 230 kV transmission facilities; and

(c) grant a certificate of public convenience and necessity for the facilities under the Utility Facilities Act.

VIRGINIA ELECTRIC AND POWER COMPANY

By: _____
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Counsel for Applicant Virginia Electric and Power Company
November 6, 2015

Appendix

COMMONWEALTH OF VIRGINIA
BEFORE THE
STATE CORPORATION COMMISSION

APPLICATION OF

VIRGINIA ELECTRIC AND POWER COMPANY

FOR APPROVAL AND CERTIFICATION
OF ELECTRIC FACILITIES

Haymarket 230 kV Double Circuit Transmission Line and 230-34.5 kV Haymarket Substation

Application No. 272

Appendix

Containing Information in Response to
"Guidelines of Minimum Requirements for Transmission Line Application"

Case No. PUE-2015-00107

Filed: November 6, 2015

TABLE OF CONTENTS

I. NECESSITY FOR THE PROPOSED PROJECT

A. Detail the engineering justifications for the proposed project (for example, provide narrative to support why the project is necessary to upgrade or replace an existing facility, to significantly increase system reliability, to connect a new generating station to the Company's system, etc.). Detail the later plans for the proposed project, if appropriate.

Response: In order to provide service requested by a retail electric service customer (the "Customer") in Prince William County, Virginia; to maintain reliable service for the overall growth in the area; and to comply with mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards; Virginia Electric and Power Company ("Dominion Virginia Power" or the "Company") proposes to (i) convert its existing 115 kV Gainesville-Loudoun Line #124, located in Prince William and Loudoun Counties, to 230 kV operation; (ii) construct in Prince William County, Virginia and the Town of Haymarket, Virginia a new 230 kV double circuit transmission line to run approximately 5.1 miles[1] from a tap point approximately 0.5 mile north of the Company's existing Gainesville Substation on the converted Line #124 ("Haymarket Junction") to a new 230-34.5 kV Haymarket Substation (the "Haymarket Loop"); and (iii) construct a 230-34.5 kV Haymarket Substation on land in Prince William County to be owned by the Company (Line #124 conversion, the Haymarket Loop and Haymarket Substation, collectively, the "Project").

Attachments I.A.1 and I.A.2 are one-line diagrams of the area transmission system before and after construction of the Project. See Attachment II.A.2 for a map depicting the proposed Project, and Attachment I.E.2 for a depiction of the existing transmission system in the area with the addition of the Project.

The Customer is developing a data center campus on 44 acres in Prince William County, which has been identified as the Haymarket Campus ("Haymarket Campus"). The facility is located west of the Town of Haymarket approximately 0.4 mile west of James Madison Highway (U.S. Route 15 ("U.S. 15")) along John Marshall Highway (State Route 55 ("SR 55")), and the Customer has requested retail electric service from Dominion Virginia Power. The total Customer load at Haymarket Campus is projected to be approximately 120 MVA, consisting of three buildings.[2] The proposed

[1] The Environmental Routing Study identifies a route length of 5.0 miles. The 0.1 mile difference results from the specific site layout at Remington and Gordonsville Substations and is not included in the environmental impact evaluation.

[2] Apparent power, measured in megavolt amperes (MVA), is made up of real power (MW) and reactive power megavolt ampere reactive (MVAR). The power factor (pf) is the ratio of real power to apparent power. For loads with a high pf (approaching unity), real power will approach apparent power and the two can be used interchangeably.

new electric transmission facilities must be in service by June of 2018 to serve the Customer's new development. The total loading at Haymarket Substation, including the Customer's load, is projected to be approximately 160 MVA at full build-out.

The proposed Haymarket Substation will be constructed initially with four 230 kV breakers in a ring arrangement, two 84 MVA, 230-34.5 kV transformers, nine 34.5 kV distribution circuits, and other associated equipment. It will be designed to accommodate future growth in the area with a build-out of three 84 MVA, 230-34.5 kV transformers, and up to eleven 34.5 kV distribution circuits. The load area served by the proposed Haymarket Substation will be referred to as the "Haymarket Load Area" for purposes of this Appendix.

The existing Line #124 is constructed as the underbuilt circuit on the Company's 500 kV Meadow Brook-Loudoun Line #535 and is currently operated at 115 kV.[3] It will be converted to 230 kV operation by creating a 230 kV terminal position at Gainesville Substation (in space made available by the removal of 230-115 kV Transformer #2 (TX#2), which became an "emergency spare" following completion of the Company's Cloverhill-Liberty project in May 2015, as approved by the Commission by Final Order issued on April 17, 2013 in Case No. PUE-2012-00065[4]) and at Loudoun Switching Station ("Loudoun Station"). The conversion of Line #124 from 115 kV to 230 kV operation involves minimal ground disturbance, which is described in Section I.D of this Appendix.[5] The proposed Haymarket Loop will be constructed on new right-of-way using double circuit, single-shaft galvanized steel poles with three twin-bundled 795 ACSR 26/7 phase conductors with a summer transfer capability of 1225 MVA. By cutting converted Line #124 at Haymarket Junction, the Haymarket Loop will create two new 230 kV lines to be designated 230 kV Gainesville-Haymarket Line #2176 and 230 kV Haymarket-Loudoun Line #2169.

The proposed new facilities must be in-service by May 2018 to serve the Customer's Haymarket Campus.

Load loss criteria specify real power (MW) units because that represents the real power that will be dropped; however, MVA is used to describe the equipment ratings to handle the apparent power, which includes the real and reactive load components.

[3] *Joint Application of Virginia Electric and Power Company d/b/a Dominion Virginia Power and Trans-Allegheny Interstate Line Company for certificates of public convenience and necessity to construct facilities: 500 kV Transmission Line from Transmission Line #580 to Loudoun Substation*, Case No. PUE-2007-00031, Order (Oct. 7, 2008).

[4] *Application of Virginia Electric and Power Company d/b/a Dominion Virginia Power for approval and certification of electric transmission facilities in Prince William County and the City of Manassas: Cloverhill – Liberty 230 kV Transmission Line, Liberty Loop 230 kV Double Circuit Transmission Line, and 230-115 kV Liberty Substation*, Case No. PUE-2012-00065, Order (May 5, 2015).

[5] The conversion of Line #124 was originally proposed in Case No. PUE-2014-00025. *See infra* note 7.

The proposed route for the Haymarket Loop ("Proposed Route"), as well as four alternative routes (each an "Alternative Route," and collectively "Alternative Routes") for possible consideration by the Commission, are described in Section II.A.1 of this Appendix and in detail in the Environmental Routing Study included with the DEQ Supplement.

The double circuit Haymarket Loop was selected over a single circuit tap because the load for the Haymarket Load Area including the Customer's initial proposed load ramp schedule is projected to exceed 100 MW by summer 2016. To accommodate the permitting and construction schedule, however, the Company has coordinated with the Customer to adjust the ramp schedule to reflect the proposed May 2018 in-service date for the Project. Consequently, the Company anticipates that loading at the Haymarket Substation, including the Customer's load, will reach or exceed 100 MW in summer 2018. In order to comply with mandatory NERC Reliability Standards, the Company maintains NERC-compliant "Facility Connection Requirements," which include the Company's Transmission Planning Criteria.[6] Section C.2.6 of the Company's Transmission Planning Criteria limit loading on a radial feed in excess of 100 MW without "an alternate transmission supply." The double circuit configuration of the Haymarket Loop satisfies this criterion.

Federally-mandated NERC Reliability Standards constitute minimum criteria with which all public utilities must comply as components of the interstate electric transmission system. Moreover, the Energy Policy Act of 2005 mandates that electric utilities must follow these NERC Reliability Standards, and utilities could be fined up to $1 million a day per violation if found to be in noncompliance. NERC has been designated by the Federal Energy Regulatory Commission ("FERC") as the Electric Reliability Organization for the United States.

Dominion Virginia Power is part of the Eastern Interconnection transmission grid, meaning it is interconnected, directly or indirectly, with all of the other transmission systems in the United States and Canada between the Rocky Mountains and the Atlantic coast, except Quebec and most of Texas. All of the transmission systems in the Eastern Interconnection are dependent on each other for support in moving bulk power through the transmission system and for reliability support. Dominion Virginia Power's service to its customers is extremely reliant on a robust and reliable regional transmission system.

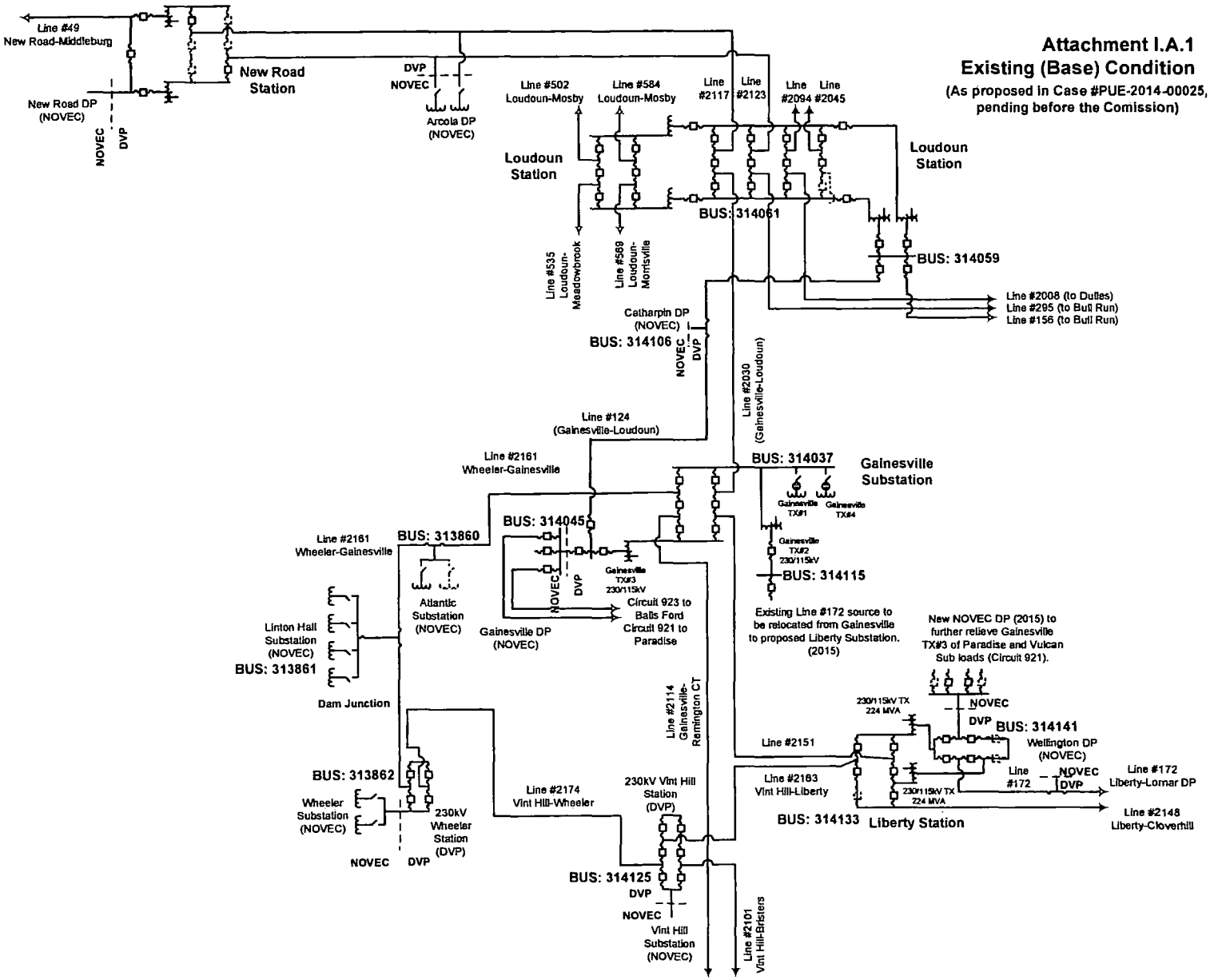
Dominion Virginia Power also is part of the PJM Interconnection L.L.C. ("PJM") regional transmission organization (RTO) providing service to a large portion of the eastern United States. PJM is currently responsible for

[6] The Company's Transmission Planning Criteria can be found in Exhibit A of the Company's Facility Connection Requirements document, which is available online at https://www.dom.com/library/domcom/pdfs/electric-transmission/facility-connection-requirements.pdf.

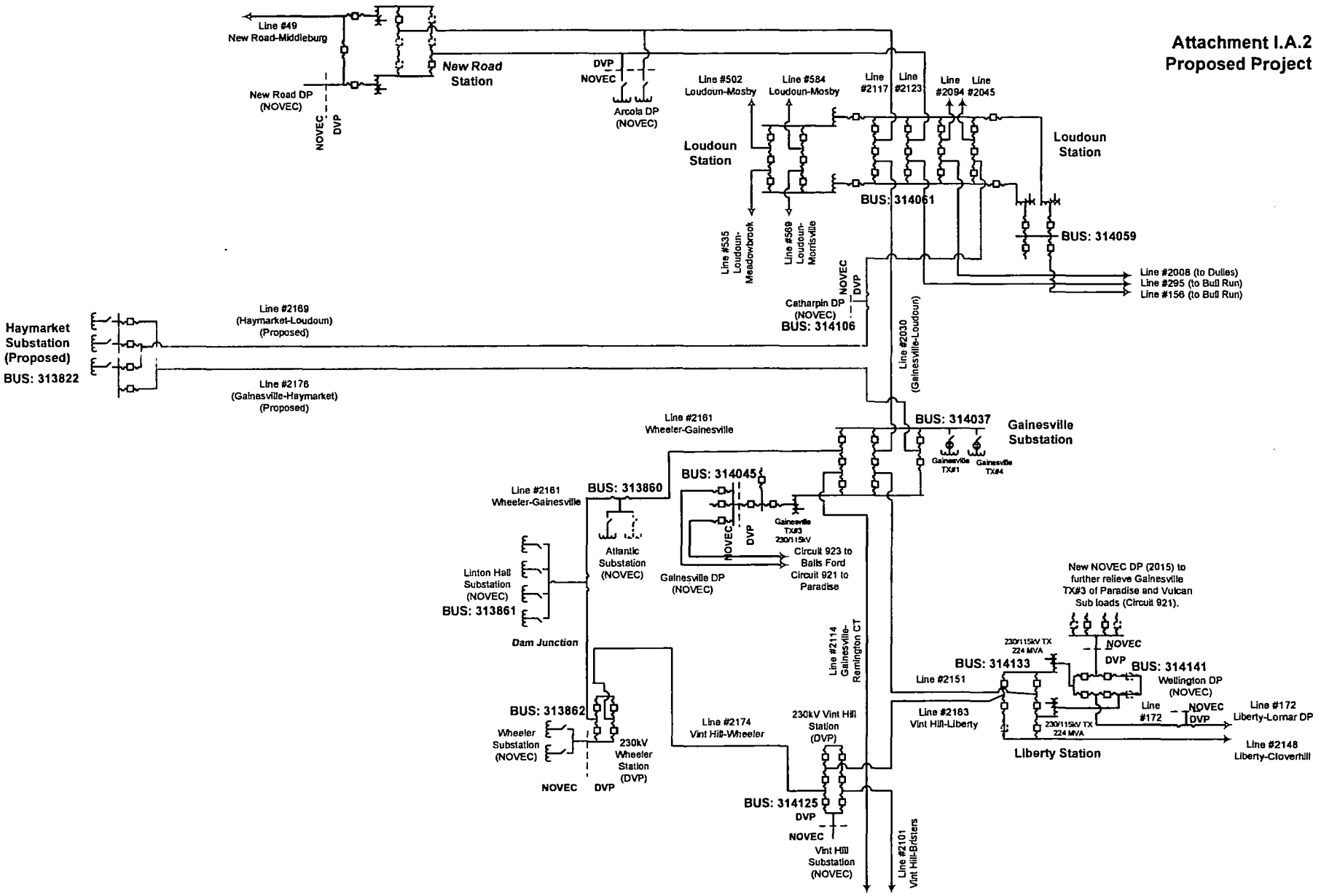
ensuring the reliability and coordinating the movement of electricity through all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia and the District of Columbia. This service area has a population of about 60 million and on July 21, 2011, set a record high of 158,450 MW for summer peak demand, of which Dominion Virginia Power's load portion was approximately 19,636 MW serving 2.4 million customers. On July 22, 2011 the Company set a record high of 20,061 MW for summer peak demand. On February 20, 2015, the Company set a winter and all-time record demand of 21,651 MW. Moreover, based on the 2015 PJM Load Forecast, the Dominion Zone is expected to be one of the fastest growing zones in PJM with an average growth rate of 1.7% over the next 10 years compared to the PJM average of 1.0% over the same period.

Dominion Virginia Power's transmission system is responsible for providing transmission service to the Company's retail customers and also to Appalachian Power Company (APCo), Old Dominion Electric Cooperative (ODEC), Northern Virginia Electric Cooperative ("NOVEC"), Central Virginia Electric Cooperative (CVEC), and Virginia Municipal Electric Association (VMEA) for redelivery to their retail customers in Virginia, as well as to North Carolina Electric Membership Corporation (NCEMC) and North Carolina Eastern Municipal Power Agency (NCEMPA) for redelivery to their customers in North Carolina. The Company needs to be able to maintain the overall, long-term reliability of its transmission system, as its customers require more power in the future.

The estimated cost to construct the Project, which is scheduled for completion by May 2018, is approximately $51.0 million (2015 dollars), of which approximately $30.2 million is for transmission line construction and approximately $20.8 million is for station work.


Attachment I.A.1
Existing (Base) Condition
(As proposed in Case #PUE-2014-00025, pending before the Comission)
Line #49
New Road-Middleburg
New Road DP
(NOVEC)
NOVEC
DVP
New Road
Station
DVP
NOVEC
Arcola DP
(NOVEC)
Line #502
Loudoun-Mosby
Line #584
Loudoun-Mosby
Line
#2117
Line
#2123
Line
#2094
Line
#2045
Loudoun
Station
Loudoun
Station
BUS: 314061
BUS: 314059
Line #535
Loudoun-
Meadowbrook
Line #569
Loudoun-
Morrisville
Line #2008 (to Dulles)
Line #295 (to Bull Run)
Line #156 (to Bull Run)
Catharpin DP
(NOVEC)
BUS: 314106
NOVEC
DVP
Line #2030
(Gainesville-Loudoun)
Line #124
(Gainesville-Loudoun)
Line #2161
Wheeler-Gainesville
BUS: 314037
Gainesville
Substation
Gainesville
TX#1
Gainesville
TX#4
Gainesville
TX#2
230/115kV
BUS: 314115
Existing Line #172 source to
be relocated from Gainesville
to proposed Liberty Substation.
(2015)
BUS: 314045
Line #2161
Wheeler-Gainesville
BUS: 313860
Gainesville
TX#3
230/115kV
NOVEC
DVP
Atlantic
Substation
(NOVEC)
Gainesville DP
(NOVEC)
Circuit 923 to
Balls Ford
Circuit 921 to
Paradise
Linton Hall
Substation
(NOVEC)
BUS: 313861
Dam Junction
New NOVEC DP (2015) to
further relieve Gainesville
TX#3 of Paradise and Vulcan
Sub loads (Circuit 921).
230/115kV TX
224 MVA
NOVEC
DVP
BUS: 314141
Wellington DP
(NOVEC)
Line #2151
Line #2114
Gainesville-
Remington CT
BUS: 313862
Wheeler
Substation
(NOVEC)
230kV
Wheeler
Station
(DVP)
NOVEC
DVP
Line #2174
Vint Hill-Wheeler
230kV Vint Hill
Station
(DVP)
Line #2163
Vint Hill-Liberty
Line
#172
NOVEC
DVP
230/115kV TX
224 MVA
Line #172
Liberty-Lomar DP
Line #2148
Liberty-Cloverhill
BUS: 314133
Liberty Station
BUS: 314125
DVP
NOVEC
Vint Hill
Substation
(NOVEC)
Line #2101
Vint Hill-Bristers

Attachment I.A.2
Proposed Project



I. NECESSITY FOR THE PROPOSED PROJECT

B. Describe the present system and detail how the proposed project will effectively satisfy present and future demand requirements. Provide pertinent load growth data (at least five years of historical and ten years of projected loads where applicable). Provide all assumptions inherent within the projected data and why existing right-of-way cannot adequately serve the needs of the Company if that is the case. Indicate when the existing system is projected to be inadequate. If the existing system is, or will at some future time be inadequate in a contingency situation, describe this critical contingency. Detail what might cause such situation. Where appropriate, provide historical incidence of similar situations which would be avoided by the proposed construction.

Response: As presented in Attachment I.E.1, Dominion Virginia Power's existing utility system in the vicinity of the proposed Haymarket Substation includes four substations (Gainesville, Warrenton, Middleburg, and New Road). The Company anticipates that Wheeler Switching Station ("Wheeler Station"), proposed in Case No. PUE-2014-00025 pending before the Commission,[7] will also be in service by summer 2017.

The Company's Gainesville Substation in Prince William County is located south of Prince William Parkway and west of Balls Ford Road, approximately 5.1 miles (straight line) east of proposed Haymarket Substation, adjacent to a north-south transmission corridor that contains two 500 kV lines, three 230 kV lines, and one 115 kV line. It is sourced by the three 230 kV transmission lines that are underbuilt circuits on the 500 kV Meadow Brook-Loudoun Line #535 and Morrisville-Loudoun Line #569 that bypass Gainesville Substation. Bristers-Gainesville Line #2101 enters Gainesville from the south as the underbuilt 230 kV circuit on Line #569, while existing 230 kV Remington CT-Gainesville Line #2114 also enters Gainesville from the south as the underbuilt circuit for Line #535. Loudoun-Gainesville Line #2030 enters Gainesville from the north as the underbuilt 230 kV circuit for Line #569. The 115 kV Loudoun-Gainesville Line #124 enters Gainesville Substation from the north as the underbuilt circuit for Line #535 and will be converted from 115 kV to 230 kV operation by adding two 230 kV breakers to create a new terminal. The three existing 230 kV transmission lines terminate in a six-breaker 230 kV ring bus that also feeds one 230-115 kV, 224 MVA transformer (TX#3), one 230-115 kV, 168 MVA transformer (TX#5), and two 230-34.5 kV, 84 MVA transformers (TX#1 and TX#4). TX#1 and TX#4 feed a total of four 34.5 kV distribution circuits that serve approximately 9,653 customers in Prince William and Fauquier Counties. TX#2, a 230-115 kV,

[7] *Application of Virginia Electric and Power Company d/b/a Dominion Virginia Power for approval and certification of electric facilities: Remington CT-Warrenton 230 kV Double Circuit Transmission Line, Vint Hill-Wheeler & Wheeler- Loudoun 230 kV Transmission Lines, Vint Hill Switching Station & Wheeler Switching Station*, Case No. PUE-2014-00025 (filed Mar. 31, 2014).

168 MVA transformer formerly feeding 115 kV Gainesville-Lomar Delivery Point ("DP") Line #172, has been reconfigured, creating room for the two additional 230 kV breakers needed to terminate the converted Line #124 at Gainesville Substation. TX#3 and TX#5 both feed NOVEC's Gainesville DP, which is contiguous with the western edge of the Company's Gainesville Substation. By 2017, as part of the proposed project in Case No. PUE-2014-00025, the Company anticipates that Gainesville TX#5 will be removed to accommodate the conversion of NOVEC's Gainesville-Wheeler 115 kV Line #922 to 230 kV operation by freeing up a 230 kV terminal position in the ring bus.

Warrenton Substation is located in Fauquier County, approximately 10.4 miles (straight line) southwest of the proposed Haymarket Substation and is sourced by radial 230 kV Line #2086 (Remington CT-Warrenton). It presently contains one 84 MVA, 230-34.5 kV and one 50 MVA, 230-34.5 kV transformer, four 34.5 kV distribution circuits, and associated equipment. It is expected that the outcome of the previously mentioned Case No. PUE-2014-00025 will result in Warrenton Substation being networked with either a second 230 kV line from Remington CT Switching Station or a new line to the proposed Wheeler Station. Warrenton Substation is 15.4 distribution line miles from the Haymarket Campus and has no direct connectivity with the Customer's parcel. Warrenton distribution circuit ("DC") #492 ties with Gainesville DC #695.

Middleburg Substation is located in Loudoun County, approximately 10.5 miles (straight line) northwest of the proposed Haymarket Substation and is sourced by radial 115 kV Line #49 (New Road-Middleburg). It contains one 40 MVA, 115-34.5 kV transformer, one 20 MVA, 115-34.5 kV transformer, one 33 MVA, 115-34.5 kV transformer, four 34.5 kV distribution circuits, and associated equipment. Middleburg Substation is 25.1 distribution line miles from the Haymarket Campus and has no direct connectivity to the Customer's parcel.

New Road Switching Station ("New Road Station") is located in Loudoun County, approximately 8.1 miles (straight line) north of the proposed Haymarket Substation and is sourced by double circuit 230 kV Line #2117 and #2123 from Loudoun Station. Each 230 kV line terminates at a 230 kV breaker (set-up for a future ring arrangement) feeding a 168 MVA 230-115 kV transformer (two total). The low-side of each transformer terminates in a 115 kV breaker and is networked through a normally-closed 115 kV tie breaker. Two 115 kV lines are sourced by New Road Line #49 to the Company's Middleburg Substation and Line #113 (a single span) to NOVEC's New Road DP directly adjacent to New Road Station.

The proposed Wheeler Station will be located in Prince William County, approximately 4.5 miles (straight line) south of the proposed Haymarket

Substation. It is proposed to contain three 230 kV breakers in a six-breaker ring arrangement and is expected to be the terminus for the converted NOVEC Gainesville-Wheeler Line #922, mentioned previously. Depending on the Commission's Final Order in Case No. PUE-2014-00025, the Wheeler Station is also expected to be the terminus for a 230 kV line from either the Company's proposed Vint Hill Switching Station or Warrenton Substation. It will also become the new source for NOVEC's existing Wheeler substation (to be called Wheeler DP).

The Company's distribution network to the Customer's site will consist of three 34.5 kV distribution circuits (Gainesville DC #378, #379, #695). Gainesville 34.5 kV DC #379 and #695 run 1.0 mile south to Wellington Road and 2.0 miles west along Wellington Road to the intersection of Route 29. At this location, DC #379 and DC #695 circuit split and take separate paths, until they tie at the Customer's existing facility. DC #379 generally follows Heathcote Boulevard underground for 4.0 miles to the Customer's facility, while DC #695 generally follows SR 55 overhead for 2.7 miles to the Customer's existing facility. DC #378 feeds north out of Gainesville Substation and crosses Prince William Parkway, SR 55, and U.S. 29. The circuit will then parallel U.S. 29 to the intersection of Route 50 and then overbuild on existing DC #695 through the Town of Haymarket to the Customer's proposed Haymarket Campus.

These three circuits represent the full extent of load that the Company's distribution network will be able to serve until the proposed Haymarket Substation is energized. Gainesville DC #379 and #695 are rated for 36 MVA and Gainesville DC #378 is rated for 54 MVA (for a total of 126 MVA) with differing amounts of existing load currently served by each circuit. Due to the amount of load identified by the Customer and the line mileage from the Company's existing Gainesville Substation, prudent utility practice would prevent building additional distribution circuits to feed the Customer long-term.[8] Additionally, Section G of the Company's Transmission Planning Criteria recommends the general use of transmission facilities for "[a]ll loads and generation over 20 MW."[9]

<u>Attachment I.B.1</u> shows historical and projected loads for the three 34.5 kV distribution circuits (Gainesville DC #378, #379 and #695) without the load contribution associated with the Haymarket Campus. Five years of historical and 10 years of projected loads are shown for the summer season. Summer loads are shown because the higher ambient temperatures cause customer

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[8] FERC identifies "prudent utility practices" as including standards, practices, and methods that are currently and commonly used by electric utilities to plan, engineer, select, operate, schedule and maintain electric power facilities and equipment reliably, safely, and efficiently. *See, e.g.*, http://www.ferc.gov/EventCalendar/Files/20130806115435-ER92-595-005.pdf. The view of the distribution system presented here reflects years of Company electric utility expertise and experience demonstrating that service to 160 MVA of block load from a remote distribution source is neither prudent nor acceptable.

[9] *See supra* n. 6.

loads in this area to be at their annual maximum, and the heat also reduces the thermal capacity of the distribution system components such as wires and transformers. Load growth was estimated at 1% each year.

Attachment I.B.2 shows historical and projected loads for three 34.5 kV distribution circuits (Gainesville #378, #379 and #695) that will serve the Haymarket Campus. As load in the Haymarket Load Area increases in tandem with the Customer's requested load ramp schedule, overloads are projected to occur in summer (commencing June 1) 2017. The Customer has requested service for 101 MVA by summer 2017, and with only 48.9 MVA available on distribution circuits, the Company has worked with the Customer to adjust the original ramp schedule mentioned in Section I.A.

Attachment I.B.3 shows historical and projected loads for the Haymarket Load Area with the Customer's adjusted ramp schedule with the successful completion of Haymarket Substation. Normal and contingency overloads on the area's distribution system are solved with this proposed Project.

Additionally, Haymarket Substation will serve Haymarket area customer load in addition to the Customer's load. This arrangement will enhance the reliability for customers in the area for two distinct reasons. First, with additional capacity, the Company has greater opportunity to switch load to other available circuits in the event of an outage on any given circuit which can result in faster restoration times. Second, by constructing new distribution circuits into the load area from the proposed Haymarket Substation, the length of certain circuits serving proximate customers from Gainesville Substation is reduced from approximately six miles to less than one mile.

Attachment I.B.1. Historical and Projected Loads for circuits served out of Gainesville substation.

	Normal Over Load ("NOL") (MVA)	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Gainesville TX#1	84	43.9	59.3	38.6	37.4	29.5	25.5	25.7	26.0	26.3	26.5	26.8	27.1	27.3	27.6	27.9
379	36	13.6	30.6	24.5	23.2	15.2	11.0	11.1	11.2	11.3	11.4	11.6	11.7	11.8	11.9	12.0
380	36	30.3	28.7	14.1	14.2	14.3	14.5	14.6	14.8	14.9	15.1	15.2	15.4	15.5	15.7	15.8

Gainesville TX#4	84.0	31.3	18.1	26.6	23.9	24.1	28.7	29.0	29.3	29.5	29.8	30.1	30.4	30.7	31.1	31.4
378	54	0	0	0	0	0	16.4	16.6	16.7	16.9	17.1	17.2	17.4	17.6	17.8	17.9
695	36	31.3	18.1	26.6	23.9	24.1	12.3	12.4	12.5	12.7	12.8	12.9	13.0	13.2	13.3	13.4

Attachment I.B.2. Circuit Capacity for new Customer growth for Circuits fed out of Gainesville substation

	NOL (MVA)	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Gainesville TX#1	*84*	59.9	59.3	35.8	53.7	28.1	28.4	41.2	41.6	42.0	42.4	42.9	43.3	43.7	44.2	44.6
379	36	28.8	30.6	21.8	23.2	15.5	15.7	28.4	28.6	28.9	29.2	29.5	29.8	30.1	30.4	30.7
380	36	31.1	28.7	14.0	30.5	12.6	12.7	12.8	13.0	13.1	13.2	13.4	13.5	13.6	13.8	13.9
Gainesville TX#4	84.0	16.5	18.1	26.6	23.9	25.8	35.4	48.3	48.8	49.3	49.8	50.3	50.8	51.3	51.8	52.3
378	54	0.0	0.0	0.0	0.0	0.0	16.2	16.4	16.6	16.7	16.9	17.1	17.2	17.4	17.6	17.8
695	36	16.5	18.1	26.6	23.9	25.8	19.2	31.9	32.2	32.5	32.9	33.2	33.5	33.9	34.2	34.5
Circuit Capacity	126	80.8	77.3	77.6	79.0	84.7	74.9	49.4	48.6	47.8	47.0	46.2	45.4	44.6	43.8	43.0
CUSTOMER								40	101	120	120	120	120	120	120	120

Notes:
1.0% load growth used in table
Circuit capacity is calculated by subtracting the amount of load on each of the three circuits from the 126MVA circuit capacity

Attachment I.B.3. Haymarket Load with Substation Energized

	NOL (MVA)	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Gainesville TX#1	**84**	**59.9**	**59.3**	**35.8**	**53.7**	**28.1**	**28.4**	**47.2**	**47.6**	**42.0**	**42.4**	**42.9**	**43.3**	**43.7**	**44.2**	**44.6**
379 (Normal)	36	28.8	30.6	21.8	23.2	15.5	15.7	28.4	28.6	28.9	29.2	29.5	29.8	30.1	30.4	30.7
Customer		-	-	-	-	-	-	6.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
379	**36**	28.8	30.6	21.8	23.2	15.5	15.7	34.4	34.6	28.9	29.2	29.5	29.8	30.1	30.4	30.7
380	**36**	31.1	28.7	14.0	30.5	12.6	12.7	12.8	13.0	13.1	13.2	13.4	13.5	13.6	13.8	13.9

Gainesville TX#4	**84**	**16.5**	**18.1**	**26.6**	**23.9**	**25.8**	**35.4**	**82.3**	**82.8**	**49.3**	**49.8**	**50.3**	**50.8**	**51.3**	**51.8**	**52.3**
378	54	-	-	-	-	-	16.2	16.4	16.6	16.7	16.9	17.1	17.2	17.4	17.6	17.8
Customer		-	-	-	-	-	0.0	34.0	34.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
378	**54**	-	-	-	-	-	16.2	50.4	50.6	16.7	16.9	17.1	17.2	17.4	17.6	17.8
695 (Normal)	36	16.5	18.1	26.6	23.9	25.8	19.2	31.9	32.2	32.5	32.9	33.2	33.5	33.9	34.2	34.5
695	**36**	16.5	18.1	26.6	23.9	25.8	19.2	31.9	32.2	32.5	32.9	33.2	33.5	33.9	34.2	34.5

Haymarket TX#1	**84**	-	-	-	-	-	-	-	-	**83.0**	**83.0**	**83.1**	**83.1**	**83.1**	**83.2**	**83.2**
352	**36**	-	-	-	-	-	-	-	-	20.0	20.0	20.0	20.0	20.0	20.0	20.0
355	**36**	-	-	-	-	-	-	-	-	20.0	20.0	20.0	20.0	20.0	20.0	20.0

Haymarket Bus#2	**84**	-	-	-	-	-	-	-	-	**43.0**	**43.0**	**43.1**	**43.1**	**43.1**	**43.2**	**43.2**
349	**36**	-	-	-	-	-	-	-	-	20.0	20.0	20.0	20.0	20.0	20.0	20.0
350	**36**	-	-	-	-	-	-	-	-	20.0	20.0	20.0	20.0	20.0	20.0	20.0
351	**36**	-	-	-	-	-	-	-	-	3.0	3.0	3.1	3.1	3.1	3.2	3.2

Haymarket TX#3	**84**	-	-	-	-	-	-	-	-	**80.0**	**80.0**	**80.0**	**80.0**	**80.0**	**80.0**	**80.0**
350	**36**	-	-	-	-	-	-	-	-	20.0	20.0	20.0	20.0	20.0	20.0	20.0
351	**36**	-	-	-	-	-	-	-	-	20.0	20.0	20.0	20.0	20.0	20.0	20.0
352	36	-	-	-	-	-	-	-	-	20.0	20.0	20.0	20.0	20.0	20.0	20.0
353	36	-	-	-	-	-	-	-	-	20.0	20.0	20.0	20.0	20.0	20.0	20.0

Customer Load	-	-	-	-	-	-	-	40.0	40.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0

Notes
Haymarket #1 will feed Haymarket Bus#1 and Bus#2

I. NECESSITY FOR THE PROPOSED PROJECT

C. Describe the feasible alternatives, if any, for meeting the identified need without constructing the proposed project. Explain why these alternatives were rejected.

Response: The Company considered and rejected electrical alternatives to the proposed Project, including the use of distribution facilities as well as existing and planned substations to serve the need for the Project.

Distribution Alternatives:

Distribution alternatives for serving the Customer's Haymarket Campus are described in Section I.B of this Appendix. For the reasons stated, there is no feasible distribution alternative to the Project.

Transmission Alternatives:

Discussion of the routing associated with each electrical alternative is presented in the Environmental Routing Study.

1) Construct a Wheeler-Haymarket 230 kV Double Circuit Loop (Wheeler Alternative Route).

This alternative would loop (in and out) a new 230 kV double circuit line from the Wheeler Station proposed by the Company in pending Case No. PUE-2014-00025 to the proposed Haymarket Substation approximately 8.6 miles on new right-of-way using double circuit, single-shaft galvanized steel poles with three twin-bundled 795 ACSR 26/7 phase conductors with a summer transfer capability of 1225 MVA. At the Wheeler Station, one of the new lines would be terminated to create a Wheeler to Haymarket line while the other new line would tie into Line #2161, proposed by the Company in Case No. PUE-2014-00025 pending before the Commission,[10] bypassing Wheeler Station to create a Gainesville to Haymarket line. The preliminary high-level cost estimate for this alternative is approximately $58.7 million, which does not include station costs associated with distribution facilities. See Attachment I.C.1 for a one-line diagram of this alternative.

In addition to its higher cost compared to the proposed Project, this electrical alternative was considered but rejected because, regardless of the outcome of the previously mentioned Case No. PUE-2014-00025, it is projected to cause undesirable reliability consequences by loading certain networks over or approaching the 300 MW loading threshold.[11] The consequences occur either (i) in 2018 when the loading on 230 kV lines between Remington CT Station,

[10] *See supra* n. 7.

[11] 300 MW is the threshold for allowable load loss associated with a NERC Category C (N-1-1) criteria violation.

Warrenton Substation, Wheeler Station, Haymarket Substation, and Gainesville Substation (the "Remington CT-Gainesville network") is projected to exceed 300 MW if Commission Staff's recommended solution is approved by the Commission, or (ii) in 2023 when the loading on 230 kV lines between Vint Hill Station, Wheeler Station, Haymarket Substation and Gainesville Substation (the "Vint Hill-Gainesville network") is projected to be within 11 MW of the 300 MW threshold if the Company's proposed solution is approved by the Commission.

If Staff's recommended solution in Case No. PUE-2014-00025 is constructed, the Remington CT-Gainesville network would have approximately 377.9 MW connected in 2018 and 397.9 MW in 2023, requiring the construction of a new approximately 5.5-mile 230 kV Vint Hill to Wheeler line along new right-of-way.[12] For the Company's proposed solution, the Vint Hill-Gainesville network would have approximately 289.1 MW connected in 2023, requiring the construction of the second 230 kV Vint Hill Station to Wheeler Station line with the introduction of approximately 11 MW of new load. Additionally, the Wheeler Alternative Route has more environmental impacts, due in part to its additional length (8.6 miles versus 5.1 miles) and would take longer to construct than the proposed Project.

2) Construct a Wheeler-Haymarket 230 kV Single Circuit Line and a Haymarket-New Road 230 kV Single Circuit Line (New Road Alternative Route).

This alternative would construct a new single circuit 230 kV line approximately 8.6 miles from proposed Wheeler Station to Haymarket Substation and a new single circuit 230 kV line approximately 12.6 miles from Haymarket Substation to New Road Station. Both new lines would be constructed using double circuit, single-shaft galvanized steel poles with three twin-bundled 795 ACSR 26/7 phase conductors with a summer transfer capability of 1225 MVA. One side of the double circuit structures on each line would remain vacant for future use. The preliminary high-level cost estimate for this alternative is approximately $130.7 million, which does not include station costs associated with distribution facilities. See Attachment I.C.2 for a one-line diagram of this alternative.

This alternative was considered but rejected because of the estimated cost being at least $79.7 million more than the proposed Project and the environmental impacts associated with the approximately 21.2-mile total solution compared to the 5.1 miles for the proposed Project. It is also anticipated that construction of this alternative would take longer to construct than the proposed Project, further widening the gap between the available

[12] It should be noted that construction of a second circuit between Remington CT Station and Warrenton Substation using existing right-of-way would resolve the 300 MW threshold issue in 2018 but would be within 11 MW of the 300 MW threshold by 2023, which would require construction of the new Vint Hill to Wheeler line.

distribution bridging capacity and the Customer's adjusted ramp schedule as mentioned in Section I.A.

3) Construct a New Road-Haymarket 230 kV Double Circuit Loop (Double Circuit Portion of New Road Alternative Route).

This alternative would loop (in and out) a new 230 kV double circuit line from New Road Station to Haymarket Substation approximately 12.6 miles on new right-of-way using double circuit, single-shaft galvanized steel poles with three twin-bundled 795 ACSR 26/7 phase conductors with a summer transfer capability of 1225 MVA. The preliminary high-level cost estimate for this alternative is approximately $84.9 million, which does not include station costs associated with distribution facilities. See Attachment I.C.3 for a one-line diagram of this alternative.

In addition to a higher cost than the proposed Project, this electrical alternative was considered but rejected because by 2023 the loading the 230 kV lines between Loudoun Station, New Road Station, and Haymarket Substation is projected to be 297.9 MW – nearly at the 300 MW loading threshold.[13] Although there are double circuit 230 kV lines between Loudoun Station and New Road Station, a tower outage would drop NOVEC's Arcola DP, the New Road Station (which also feeds NOVEC's New Road DP and the Company's Middleburg Substation), and the Haymarket load proposed to be fed by this alternative. In order to resolve the violation that would occur when the 300 MW threshold is reached, another source into Haymarket Substation, similar to the New Road Alternative Route described above, would be required and would involve the same environmental impacts associated with the approximately 21.2-mile total solution (12.6 miles initially and 8.6 miles in 2023) compared to 5.1 miles for the proposed Project.

4) Loop a new 230 kV double-circuit overhead line (in and out) from Haymarket Junction to a new Switching Station and loop two new 230 kV underground lines (in and out) from the new Switching/Terminal Station to the proposed Haymarket Substation (I-66 Hybrid Alternative Route).

This alternative would tap the converted 115 kV Gainesville-Loudoun Line #124 at Haymarket Junction, as described in Section I.A for the proposed Project. A new 230 kV double circuit overhead line would be looped (in and out) from Haymarket Junction approximately 2.6 miles on new right-of-way using double circuit, single-shaft galvanized steel poles with three twin-bundled 795 ACSR 26/7 phase conductors with a summer transfer capability of 1225 MVA, to a new switching station near I-66 and Catharpin Road containing two single circuit full dead-end backbone structures, a four-breaker 230 kV ring bus, two underground line terminals, two 50-100 MVAR reactor banks, and associated equipment. Two new 230 kV underground lines would

[13] *See supra* n. 11.

be looped (in and out) from the new switching station approximately 3.2 miles on new right-of-way along I-66 to the proposed Haymarket Substation. Each line will be constructed in a concrete encased duct bank consisting of eight, 8-inch PVC conduits and will be comprised of six parallel 3500 kcmil copper, cross-linked polyethylene ("XLPE") solid dielectric cables with a continuous rating of 1047 MVA. The preliminary high-level cost estimate for this alternative is approximately $166.6 million, which does not include station costs associated with distribution facilities. See Attachment I.C.4 for a one-line diagram of this alternative.

This alternative was not selected as the proposed Project because of several factors, including the estimated cost being at least $115.6 million more than the proposed Project, extended construction timing, operability concerns, and potential relocation issues. The constraints imposed by the I-66 route, due to a Virginia Department of Transportation ("VDOT") widening project presently under construction between U.S. 15 in Haymarket and U.S. 29 in Gainesville and a proposed I-66 and U.S. 15 Interchange Reconstruction project, as well as an additional VDOT Transform 66 Outside the Beltway project, expected construction to begin in 2017, will require coordination with the VDOT contractors during the Company's construction timeframe, would require a construction period approximately 12 months longer than the proposed Project, further widening the gap between the available distribution bridging capacity and the Customer's adjusted ramp schedule as mentioned in Section I.A. The construction work for the right-of-way associated with I-66 will be subject to timing restrictions imposed by VDOT. VDOT will limit any work that will affect travel lanes within their right-of-way to non rush-hour periods, generally from 9 a.m. to 3 p.m. Monday through Friday. Close coordination would need to occur between VDOT and Dominion Virginia Power to make sure the trenching and underground line location stays far enough away from the VDOT soundwall and foundations.

The expertise required to address certain underground outage situations is not always readily available, which presents a certain level of risk and uncertainty when evaluating the operability of a transmission line.[14]

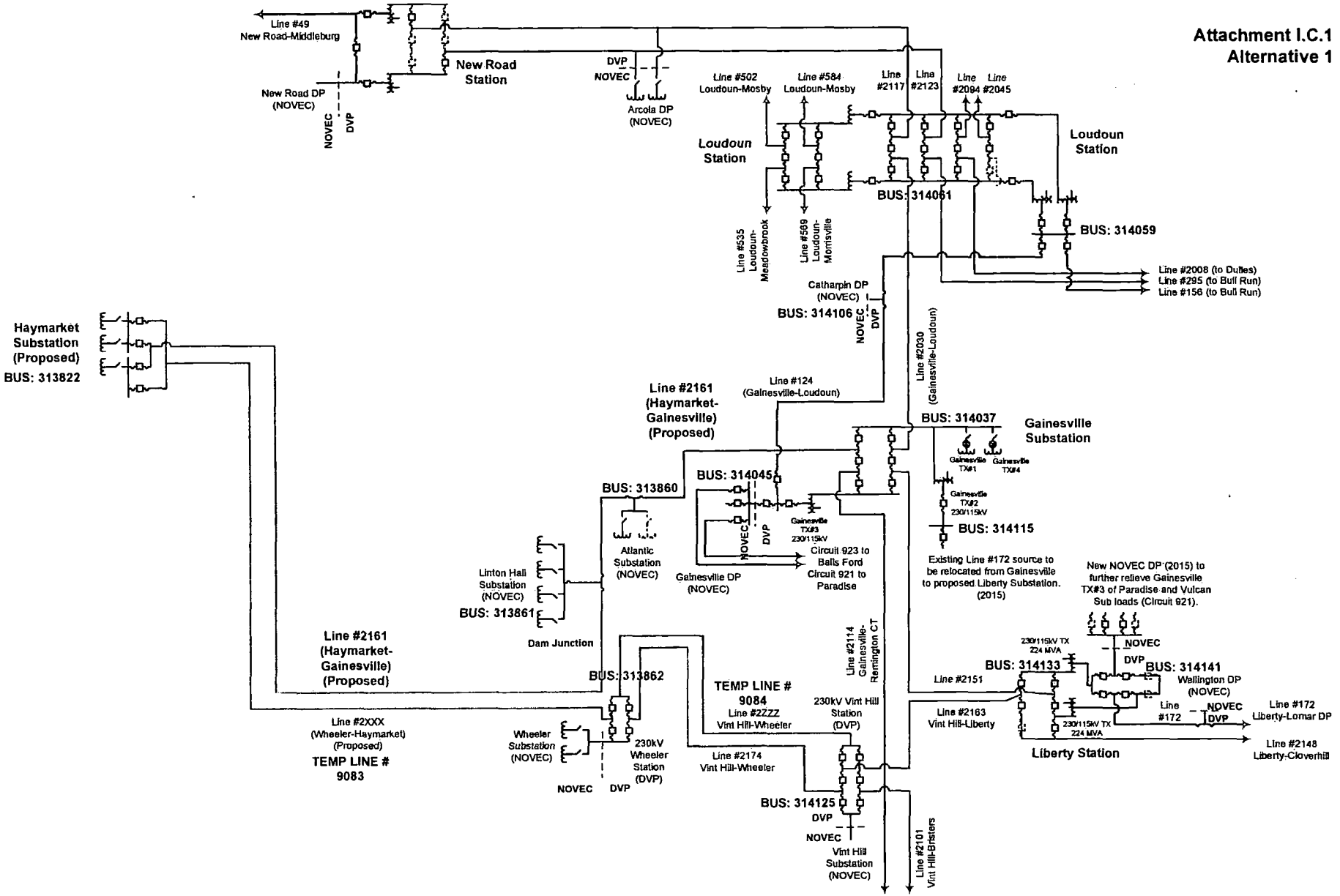
Also, any right-of-way the Company obtains within VDOT right-of-way is considered by permit, which would require the Company to relocate the facility to a new location if VDOT needed its right-of-way for further expansions of I-66 in the future. Removing an underground facility would be time-consuming and expensive. Furthermore, identifying a new location for

[14] Typically, when underground cable is purchased from a specific company, that company will require use of its own splicers to perform the splicing of these cables inside the manholes. One splice can take up to a week to complete as they are highly specialized. For example, one of the companies Dominion Virginia Power buys 230 kV cable from is LS Cable located in Korea. LS Cable's certified splicers are also from Korea, which creates a timing concern in getting on site contractors. While it is becoming more common to have other general contractors be certified in making splices on different manufacturers' cables, those contractors have to be certified specifically by each cable supply company.

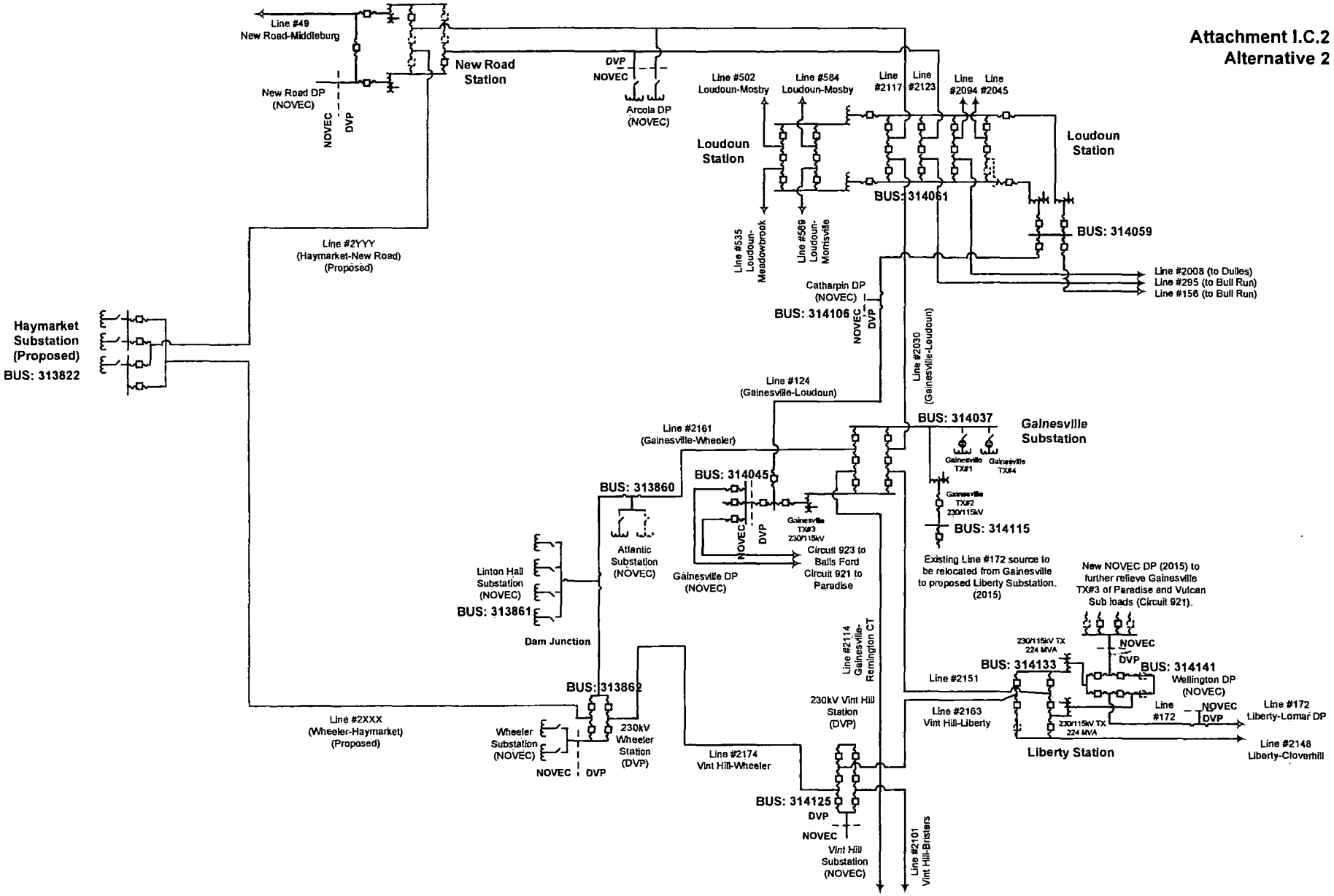
an underground facility would be problematic as the I-66 Hybrid Alternative has been identified as the only viable location for an underground option.

Additional detailed discussion of the routing associated with this electrical alternative is presented in the Environmental Routing Study.

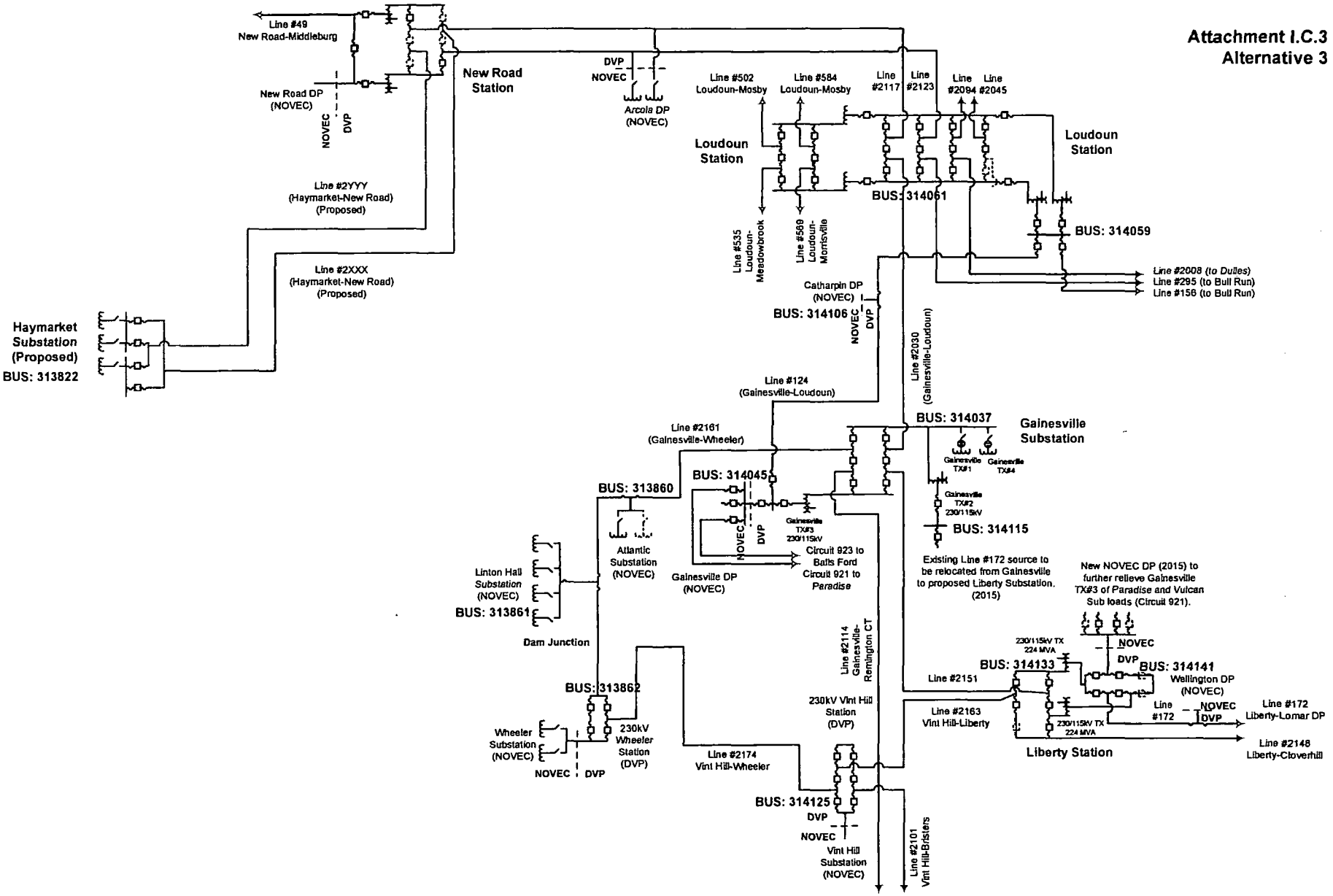
Attachment I.C.1
Alternative 1



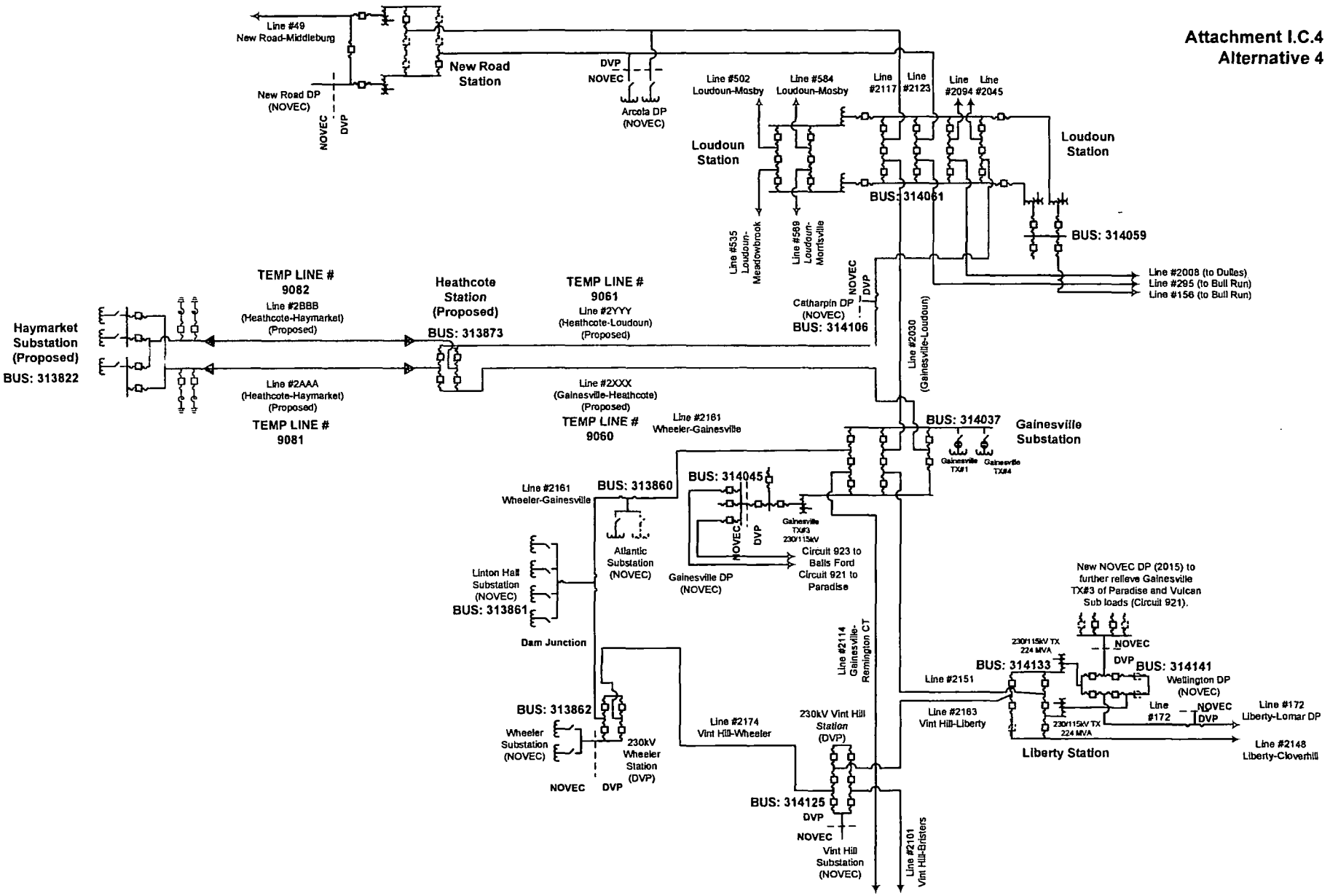
Attachment I.C.2
Alternative 2



Attachment I.C.3
Alternative 3



Attachment I.C.4
Alternative 4



I. NECESSITY FOR THE PROPOSED PROJECT

D. Describe any lines or facilities which will be removed, replaced, or taken out of service upon completion of the proposed project.

Response: The existing 115 kV Line #124 will be converted to 230 kV between Gainesville Substation and Loudoun Station.[15] The Project will create a 230 kV Line #2176 between Gainesville and Haymarket Substations and a 230 kV Line #2169 between Haymarket Substation and Loudoun Station.

The 230 kV conversion of Line #124 will include the following:

Inside Gainesville Substation, one set of 3-phase risers will be removed from Line #124.

At the NOVEC Catharpin DP, one span of 3-phase 636 ACSR conductor will be removed between existing 3-pole structure #124/19B and the NOVEC backbone. Structure #124/19B will be replaced with a terminal structure.

At Loudoun Station, one direct buried steel pole (#124/4), one direct buried guyed 3-pole structure (#124/3), and approximately 0.1 mile (4 spans) of 3-phase 1351.5 ACSR conductors between structure number #124/5 and 1 will be removed. One steel 115 kV A-frame structure (#124/1) will be replaced with a 230 kV A-frame structure inside Loudoun Station. One 115 kV A-frame structure will be replaced with a double circuit backbone inside Loudoun Station.

The existing structures between Gainesville Substation and Loudoun Station will be renumbered.

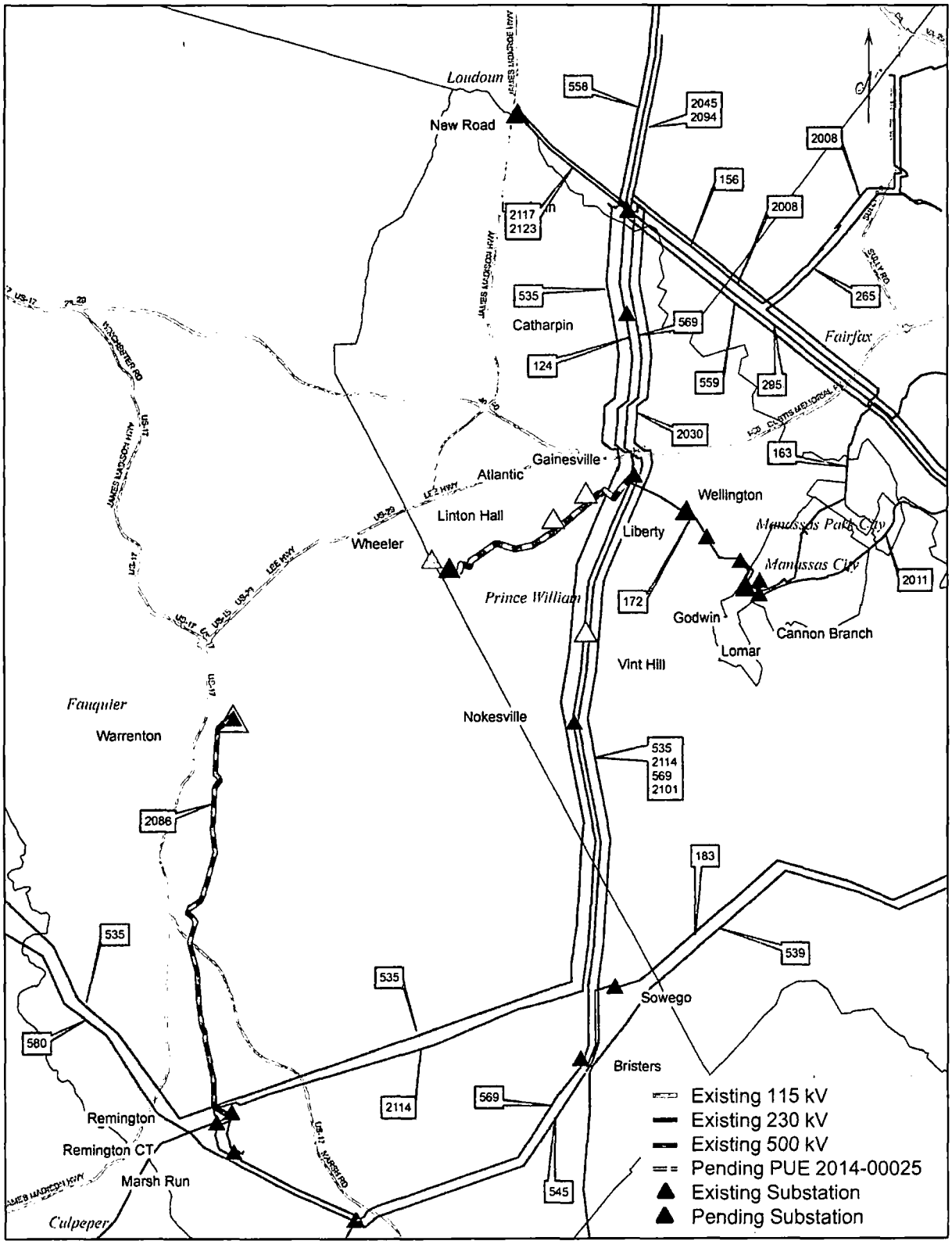
[15] *See supra* n. 5 and accompanying text.

I. NECESSITY FOR THE PROPOSED PROJECT

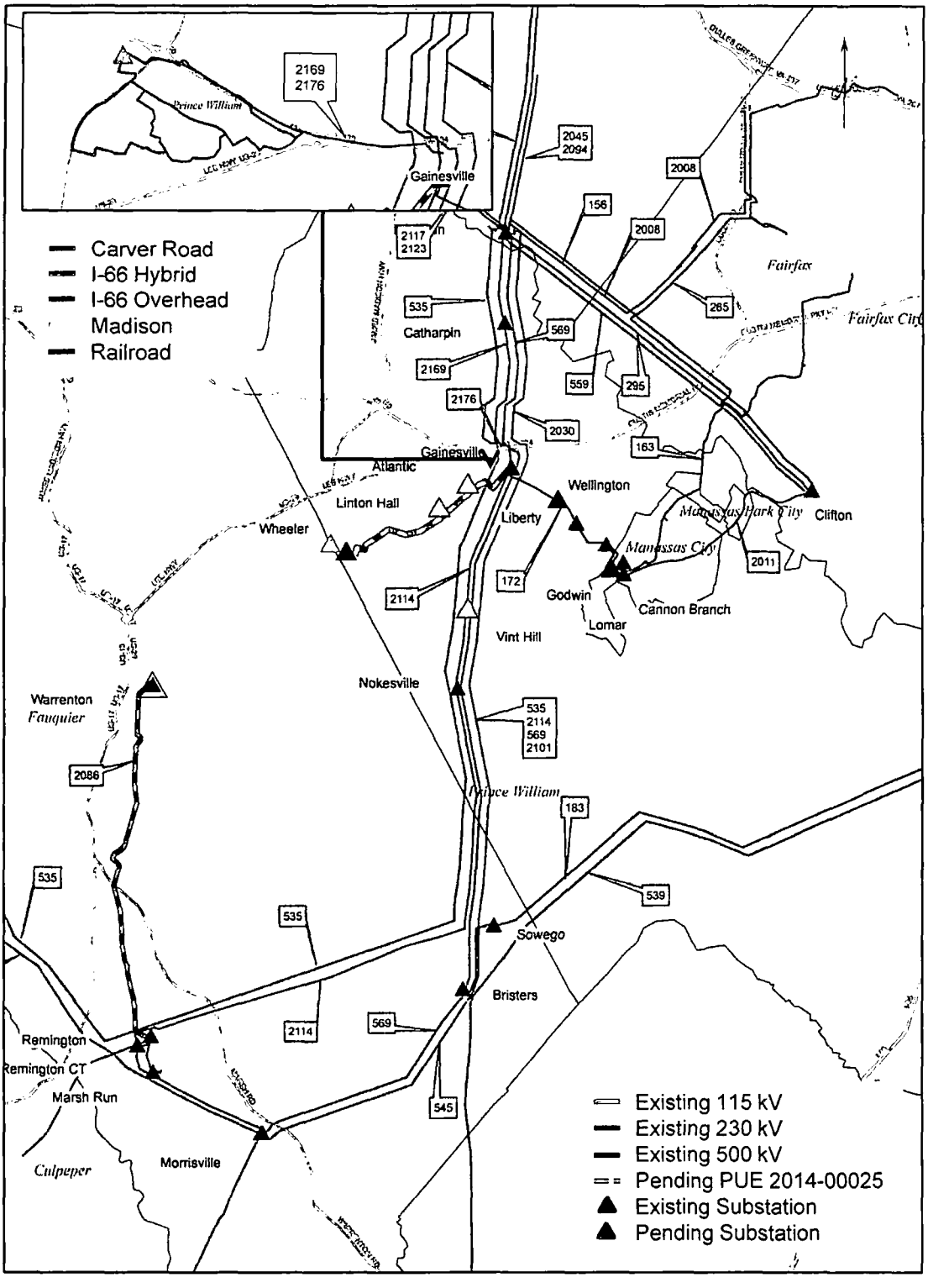
E. Provide a system map of suitable scale showing the location and voltage of the Company's transmission lines, substations, generating facilities, etc., which would affect or be affected by the new transmission line and are relevant to the necessity for the proposed line. Clearly, label on this map all points referenced in the necessity statement.

Response: See Attachment I.E.1 for a system map of the transmission system facilities affected by the Project, and Attachment I.E.2 for the transmission system including the proposed Project facilities. These maps show general locations and are not intended to show the actual location of facilities.

Attachment I.E.1



Attachment I.E.2



I. NECESSITY FOR THE PROPOSED PROJECT

F. Provide the desired in-service date of the proposed project and the estimated construction time.

Response: The in-service date for the proposed Project is May 2018.

The estimated construction time for the Project along the Proposed Route is 12 months. A period of 12 months will be needed for engineering, material procurement, right-of-way acquisition, and construction permitting.

I. NECESSITY FOR THE PROPOSED PROJECT

G. Provide the estimated cost of the project.

Response: The estimated cost of the Project is $51.0 million, which is comprised of approximately $30.2 million for transmission line work, and approximately $20.8 million for station work. The cost estimate for the Haymarket Substation work is approximately $16.7 million, Gainesville Substation work is approximately $2.0 million and Loudoun Station work is approximately $2.1 million.

All costs are based on 2015 dollars.

I. NECESSITY FOR THE PROPOSED PROJECT

H. In addition to all other information required by these guidelines, applications for approval to construct facilities and transmission lines interconnecting a Non Utility Generator (NUG) and a utility shall include the following information.

1. The full name of the NUG as it appears in its contract with the utility and the dates of the initial contract and any amendments;

2. A description of the arrangements for financing the facilities, including information on the allocation of costs between the utility and the NUG:

3. a. For Qualifying Facilities (QFs) certificated by Federal Energy Regulatory Commission (FERC) order, provide the QF or docket number, the dates of all certification or recertification orders, and the citation to FERC Reports, if available;

b. For self-certificated QFs, provide a copy of the notice filed with the FERC;

4. In addition to the information required in 3a or 3b, provide the project number and project name used by the FERC in licensing hydroelectric projects, also provide the dates of all orders and citations to FERC Reports, if available; and

5. If the name provided in 1 above differs from the name provided in 3 above, give a full explanation.

Response: Not applicable.

I. NECESSITY FOR THE PROPOSED PROJECT

I. Describe the new and existing generating sources, distribution circuits or load centers planned to be served by all new substations, switching stations and other ground facilities associated with the proposed project.

Response: No new or existing generating facilities are associated with the Project. For a description of distribution circuits and load centers to be served by the Project, see Sections I.A and I.B.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way (ROW)

1. Provide the length of the proposed corridor and viable alternatives;

Response: A description of the Proposed Route and Alternative Routes is provided below. See Attachment II.A.2 for a map of the Proposed Route and Alternative Routes.

Proposed Route (I-66 Overhead):

The Proposed Route is 5.1 miles long between Haymarket Junction and the proposed Haymarket Substation. The Proposed Route originates at the proposed tie-in location on the converted 230 kV Line #124 near the end of Cushing Road (SR 781) and extends for 5.1 miles through Prince William County and the Town of Haymarket, terminating at the proposed Haymarket Substation. It generally crosses commercially/industrially developed and forested land adjacent to existing transportation rights-of-way. The Proposed Route was developed to provide an opportunity to maximize co-location with existing infrastructure (I-66 and Norfolk Southern Railroad) and provides the shortest and most direct route to the proposed Haymarket Substation. From the tie-in location the route travels northwest for about 0.3 mile, crossing I-66, before heading in a westerly direction for another 1.7 miles paralleling the north side of I-66. This segment of the route crosses multiple on/off ramps of the interstate, Lee Highway, and University Boulevard. The route then continues heading northwest 1.9 miles following the northern side of I-66 and crossing Catharpin Road (SR 676). The route then crosses I-66 and heads in a southwest direction for 0.3 mile crossing James Madison Highway (U.S. 15). After crossing James Madison Highway (U.S. 15), the route follows the western side of the highway for about 0.1 mile, crosses John Marshall Highway (SR 55), and then continues northwest on the south side of John Marshall Highway for approximately 0.4 mile before heading south and terminating at the proposed Haymarket Substation.

See Section II.A.7 for a discussion of two variations to the Proposed Route presented by the Company.

Carver Road Alternative Route:

The Carver Road Alternative Route is a 6.7-mile double circuit transmission line between Haymarket Junction and the proposed Haymarket Substation. The Carver Road Alternative originates at the proposed tie-in location on the converted 230 kV Line #124 near the end of Cushing Road and extends 6.7 miles, terminating at the proposed Haymarket Substation. The Carver Road Alternative Route was developed to provide an opportunity to partially co-locate with existing infrastructure (Norfolk Southern Railroad), and also to

avoid crossing through the residential areas located north of Carver Road and avoid crossing between the subdivisions of Greenhill Crossing and Somerset Crossing. From the tie-in location, the route follows the same path as the Proposed Route for about 2.1 miles until it crosses Lee Highway (U.S. 29) and various I-66 on/off ramps. The Carver Road Alternative Route then deviates from the Proposed Route and heads southwest crossing I-66 and generally paralleling the north side of Lee Highway. After crossing Daves Store Lane, the route follows the northern side of Daves Store Lane for 0.2 mile and then crosses Daves Store Lane a second time.

The route then continues northwest for 0.2 mile crossing Daves Store Lane and John Marshall Highway (SR 55). From here, the route heads southwest for about 0.2 mile before heading northwest along the Norfolk Southern Railroad tracks for about 0.1 mile. The route then crosses the tracks and continues in a southwest direction for about 0.7 mile crossing Yountville Drive and Somerset Crossing Drive. The route then travels southwest for about 0.3 mile, crossing Carver Road and then heading in a general northwest direction for 0.5 for mile before crossing Old Carolina Road. From here, the route generally continues northwest for 0.6 mile passing through forested areas surrounding residences and crossing Haymarket Drive. The route then heads northeast for 0.2 mile before turning west for another 0.2 mile. The route then follows the eastern side of James Madison Highway (U.S. 15) for 0.1 mile, crosses James Madison Highway (U.S. 15), and heads southwest for approximately 0.3 mile before heading northeast for about 0.2 mile and terminates into the proposed Haymarket Substation.

Madison Alternative Route:

The Madison Alternative Route is an 8.2-mile double circuit transmission line between Haymarket Junction and the proposed Haymarket Substation. The Madison Alternative Route originates at the proposed tie-in location on the converted 230 kV Line #124 near the end of Cushing Road and extends for 8.2 miles, terminating at the proposed Haymarket Substation. The Madison Alternative Route was developed to provide an opportunity to partially co-locate with the Norfolk Southern Railroad and also to avoid crossing near some of the residences along the Proposed Route. From the tie-in location, the route follows the same path as the Proposed Route for about 2.1 miles until it crosses Lee Highway (U.S. 29) and various I-66 on/off ramps. The Madison Alternative Route then continues to follow the same path as the Carver Road Alternative Route for an additional 2.6 miles to a point on the south side of Carver Road before crossing Old Carolina Road. At this point, the Carver Road Alternative Route heads northwest to follow Carver Road, while the Madison Alternative Route deviates from the Carver Road Alternative Route and heads southwest for about 1.6 miles. This segment of the route crosses Old Carolina Road and Thoroughfare Road. The route then crosses James Madison Highway (U.S. 15) and continues northeast for 0.7 mile following the west side of the highway and crossing Thoroughfare Road,

Hokie Place, and Market Ridge Boulevard. Continuing northeast, the route then crosses James Madison Highway (U.S. 15) and follows the eastern side of the highway for about 0.5 mile before meeting back with the Carver Road Alternative Route just south of North Fork Broad Run. The route then follows the same path as the Carver Road Alternative Route for the remaining 0.6 mile and terminates at the proposed Haymarket Substation.

I-66 Hybrid Alternative Route:

The I-66 Hybrid Alternative Route is a new 230 kV double circuit transmission line 5.3 miles in length between Haymarket Junction and the proposed Haymarket Substation. The I-66 Hybrid Alternative Route originates at the proposed tie-in location on the converted 230 kV Line #124 near the end of Cushing Road and extends for about 5.3 miles through Prince William County and the Town of Haymarket, terminating at the proposed Haymarket Substation. In addition to providing an opportunity to maximize co-location, the I-66 Hybrid Alternative Route was developed to avoid the potential for visual resource impact (viewpoint along I-66) during and after construction. The hybrid route would utilize both overhead and underground transmission facilities. From the tie-in location, the route follows the same path as the Proposed Route for about 2.1 miles until it crosses Lee Highway (U.S. 29) and various I-66 on/off ramps. The route then crosses I-66 where it reaches the transition station, where an overhead to underground transition would occur. The transition station is proposed to be located on the west side of the intersection of I-66 and Lee Highway (U.S. 29). At this point the I-66 Hybrid Alternative Route (underground segment) heads northwest and continues along the southern side of I-66 for 0.7 mile, crossing Catharpin Road (SR 676). After crossing Catharpin Road (SR 676), the route continues northwest, crossing I-66, for approximately 1.2 miles following the northern side of I-66. The route then crosses I-66 and then follows the southern side of I-66 and associated eastbound on-ramp for about 0.4 mile. After crossing James Madison Highway (U.S. 15), the route meets up with the Proposed Route on the west side of the James Madison Highway (U.S. 15) and follows this route alignment for the remaining 0.6 mile before terminating at the proposed Haymarket Substation.

Railroad Alternative Route:

The Railroad Alternative Route is a new 230 kV double circuit transmission line 5.7 miles in length between Haymarket Junction and the proposed Haymarket Substation. The Railroad Alternative Route originates at the proposed tie-in location on the converted 230 kV Line #124 near the end of Cushing Road and extends for 5.7 miles through Prince William County and the Town of Haymarket, terminating at the proposed Haymarket Substation. The Railroad Alternative Route was developed to identify a potential route to avoid the I-66 right-of-way and to provide an opportunity to maximize co-location with existing infrastructure (Norfolk Southern Railroad). From the

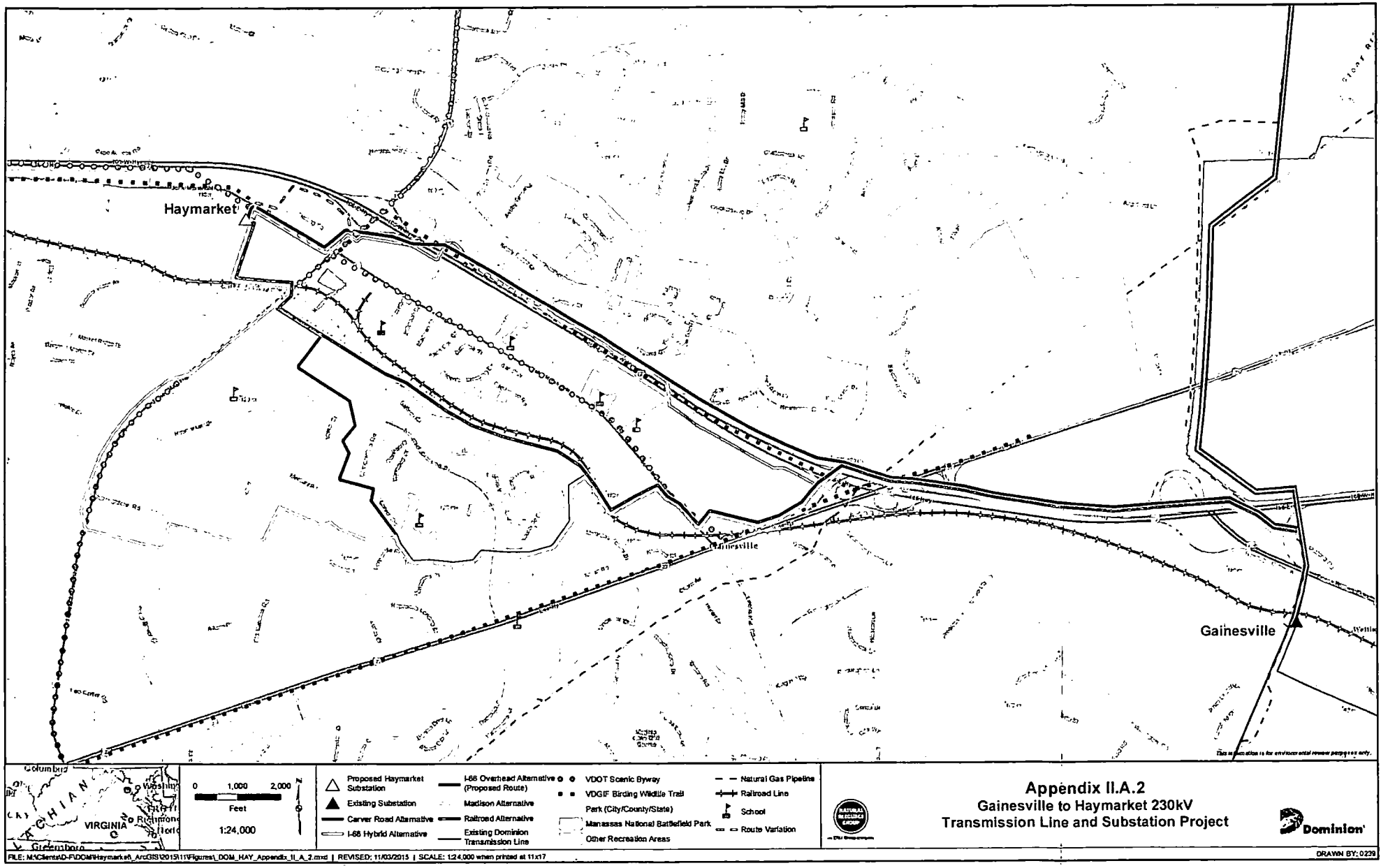
tie-in location, the route follows the same path as the Proposed Route for about 2.1 miles until it crosses Lee Highway (U.S. 29) and various I-66 on/off ramps. The Madison Alternative Route then continues to follow the same path as the Carver Road Alternative Route for an additional 1.4 miles to a point west of the John Marshall Highway (SR 55) and Norfolk Southern Railroad crossings. The route then follows the southern side of the railroad and the northern side of North Fork Broad Run for 1.0 mile. This segment of the route passes through the Town of Haymarket. After crossing Jefferson Street (SR 625), the route crosses North Fork Broad Run and continues on the south side of the river for 0.3 mile before the route meets up with the Carver Road Alternative Route and follows it for the remaining 0.8 mile into the proposed Haymarket Substation.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way (ROW)

2. Provide a map of suitable scale showing the route of the proposed line and its relation to: the facilities of other public utilities which could influence the route selection, highways, streets, parks and recreational areas, scenic and historic areas, schools, convalescent centers, hospitals, airports and other notable structures close to the proposed project. Indicate the existing facilities which the line is proposed to follow, such as existing ROW, railroad tracks, etc.;

Response: See Attachment II.A.2.


Haymarket
Gainesville
0 1,000 2,000
Feet
1:24,000
Proposed Haymarket Substation
Existing Substation
Carver Road Alternative
I-66 Hybrid Alternative
I-66 Overhead Alternative (Proposed Route)
Madison Alternative
Railroad Alternative
Existing Dominion Transmission Line
VDOT Scenic Byway
VDGIF Birding Wildlife Trail
Park (City/County/State)
Manassas National Battlefield Park
Other Recreation Areas
Natural Gas Pipeline
Railroad Line
School
Route Variation
Appendix II.A.2
Gainesville to Haymarket 230kV
Transmission Line and Substation Project
Dominion
FILE: M:\Clients\D-F\DOM\Haymarket_ArcGIS\2015\11\Figures_DOM_HAY_Appendix_II_A_2.mxd | REVISED: 11/03/2015 | SCALE: 1:24,000 when printed at 11x17
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II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way (ROW)

3. Provide a drawing(s) of the ROW cross section showing typical transmission line structure placements referenced to the edge of the right-of-way. This drawing should include:

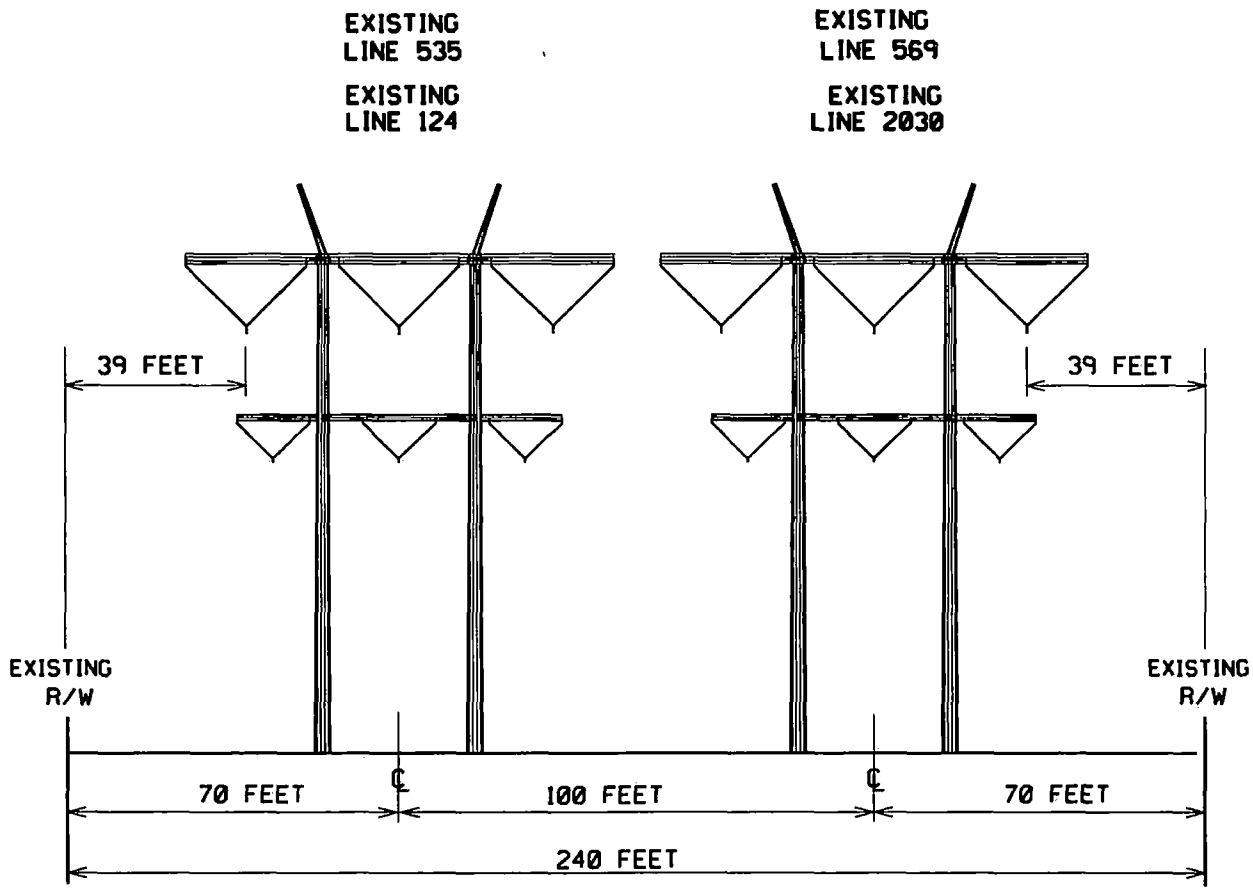
a. ROW width for each cross section drawing;

b. Lateral distance between the conductors and edge of ROW; and

c. Existing utility facilities on the ROW.

Response: See Attachments II.A.3.a-f.

GAINESVILLE - Str No 535/32

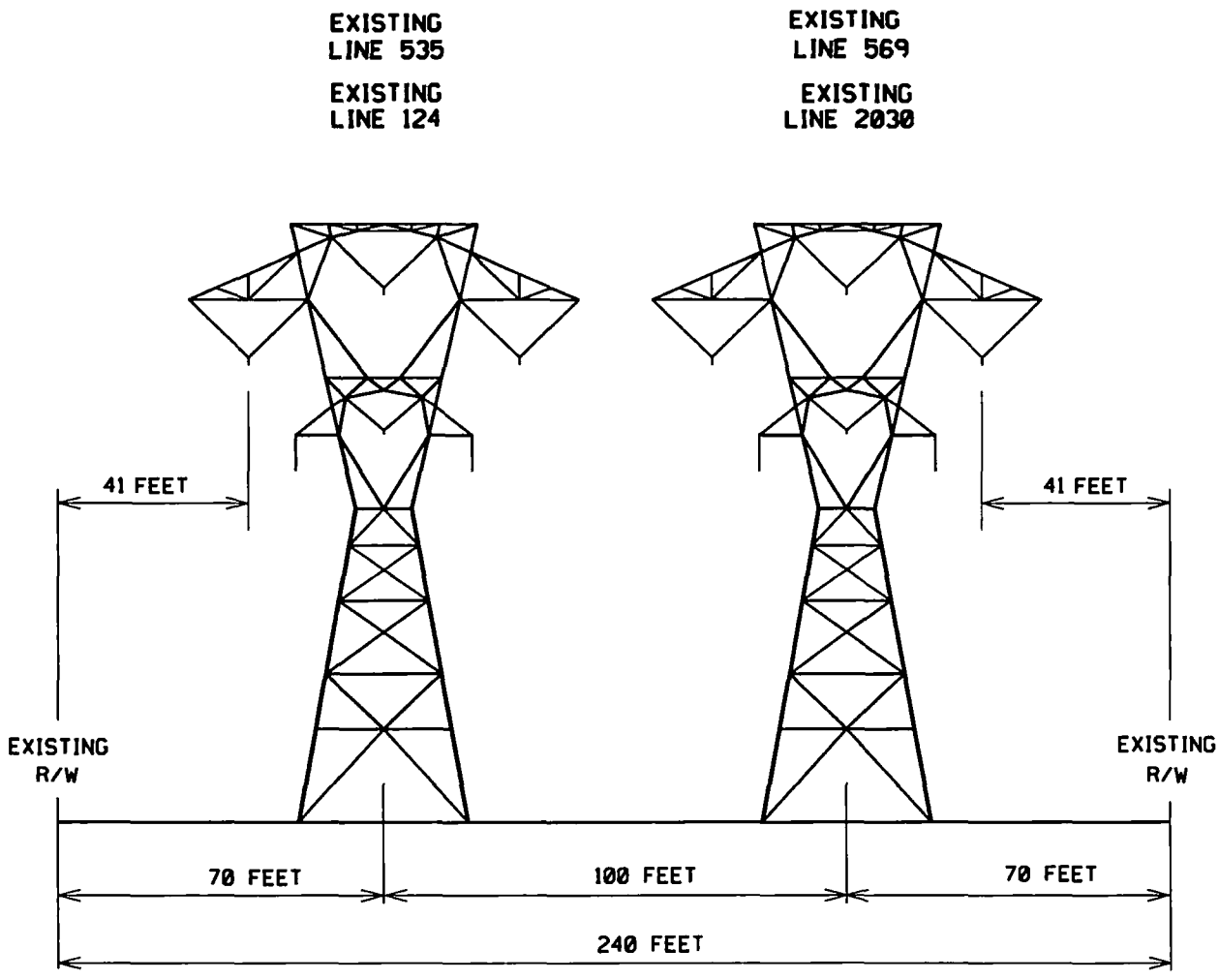


EXISTING CONFIGURATION

TYPICAL RIGHT OF WAY LOOKING TOWARD LOUDOUN

TYPE OF STRUCTURE :	STEEL H-FRAME
FOUNDATION :	CONCRETE
APPROXIMATE AVERAGE HEIGHT :	120 FEET
WIDTH AT CROSSARM :	90 FEET
WIDTH AT BASE :	36 FEET
APPROX. AVERAGE SPAN LENGTH :	854 FEET
CONDUCTOR TYPE :	ALUMINUM
RIGHT-OF-WAY WIDTH :	240 FEET
APPROXIMATE LENGTH OF LINE :	2.43 MILES

Str No 535/32 - LOUDOUN



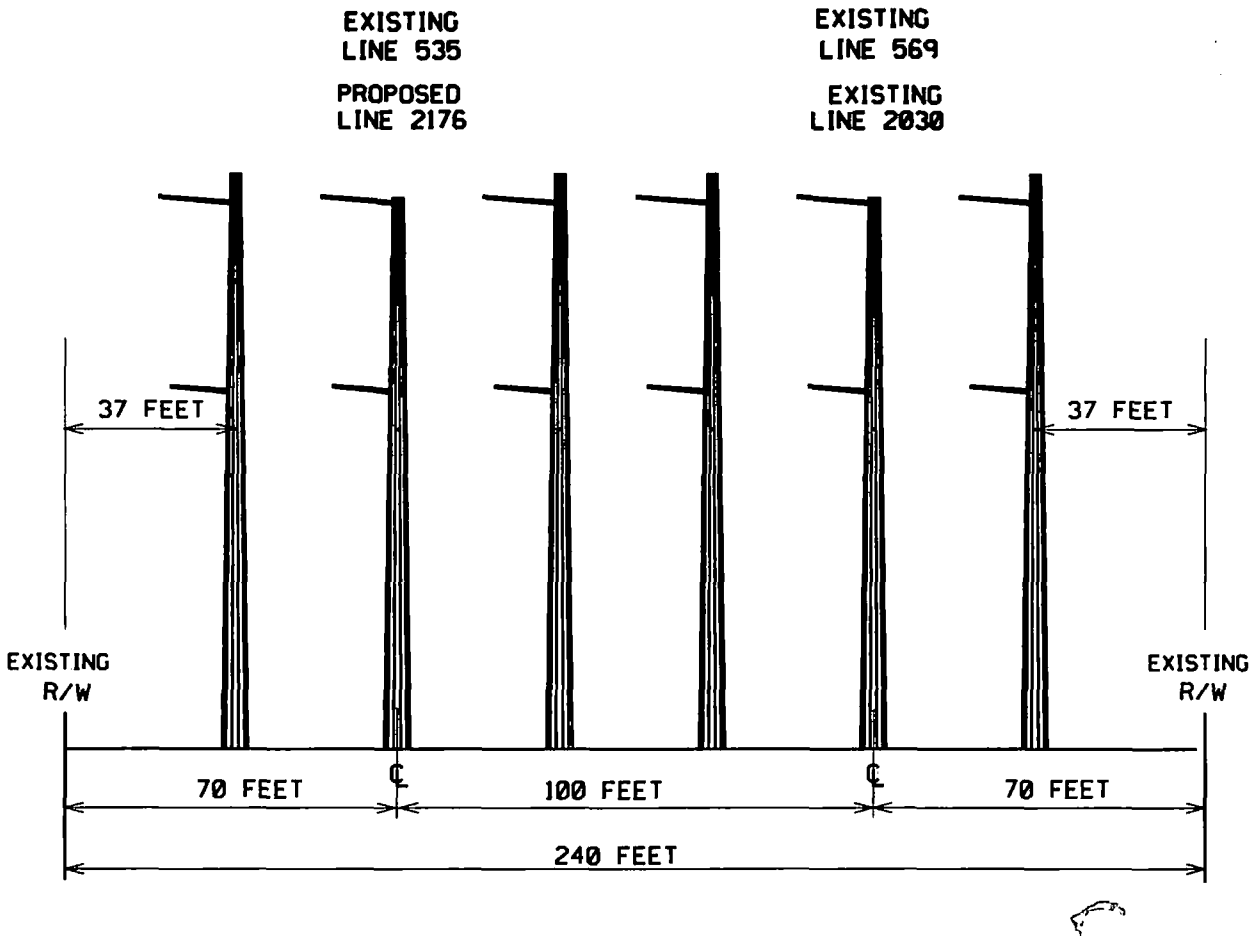
EXISTING CONFIGURATION

TYPICAL RIGHT OF WAY LOOKING TOWARD LOUDOUN

TYPE OF STRUCTURE:	LATTICE STEEL TOWER
FOUNDATION :	CONCRETE
APPROXIMATE AVERAGE HEIGHT:	130 FEET
WIDTH AT CROSSARM:	84 FEET
WIDTH AT BASE:	40 FEET
APPROX. AVERAGE SPAN LENGTH:	1012 FEET
CONDUCTOR TYPE:	ALUMINUM
RIGHT OF WAY WIDTH:	240 FEET
APPROXIMATE LENGTH OF LINE :	5.22 MILES

$DONSPEC$

GAINESVILLE - HAYMARKET JUNCTION



PROPOSED CONFIGURATION

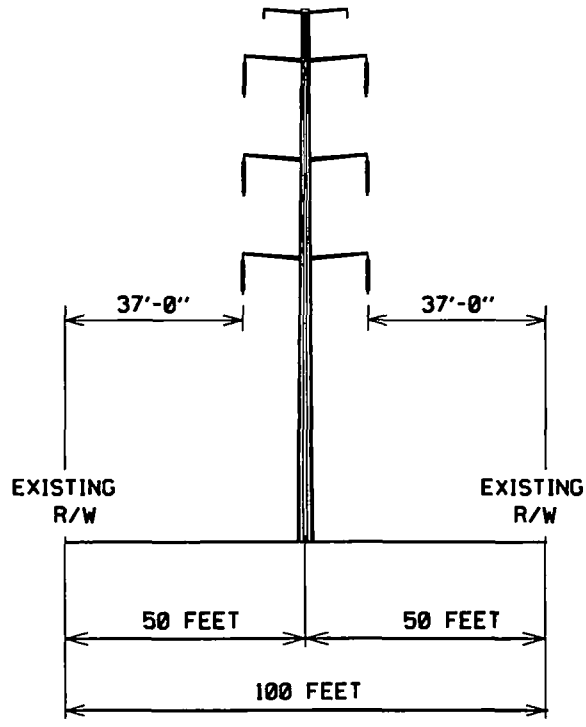
TYPICAL RIGHT OF WAY LOOKING TOWARD LOUDOUN

TYPE OF STRUCTURE :	STEEL 3-POLE
FOUNDATION :	CONCRETE
APPROXIMATE AVERAGE HEIGHT :	120 FEET
WIDTH AT CROSSARM :	85 FEET
WIDTH AT BASE :	74 FEET
APPROX. AVERAGE SPAN LENGTH :	876 FEET
CONDUCTOR TYPE :	ALUMINUM
RIGHT-OF-WAY WIDTH :	240 FEET
APPROXIMATE LENGTH OF LINE :	0.48 MILES

HAYMARKET JUNCTION - HAYMARKET

PROPOSED
230KV CIRCUIT
(LINE #2176)

PROPOSED
230KV CIRCUIT
(LINE #2169)

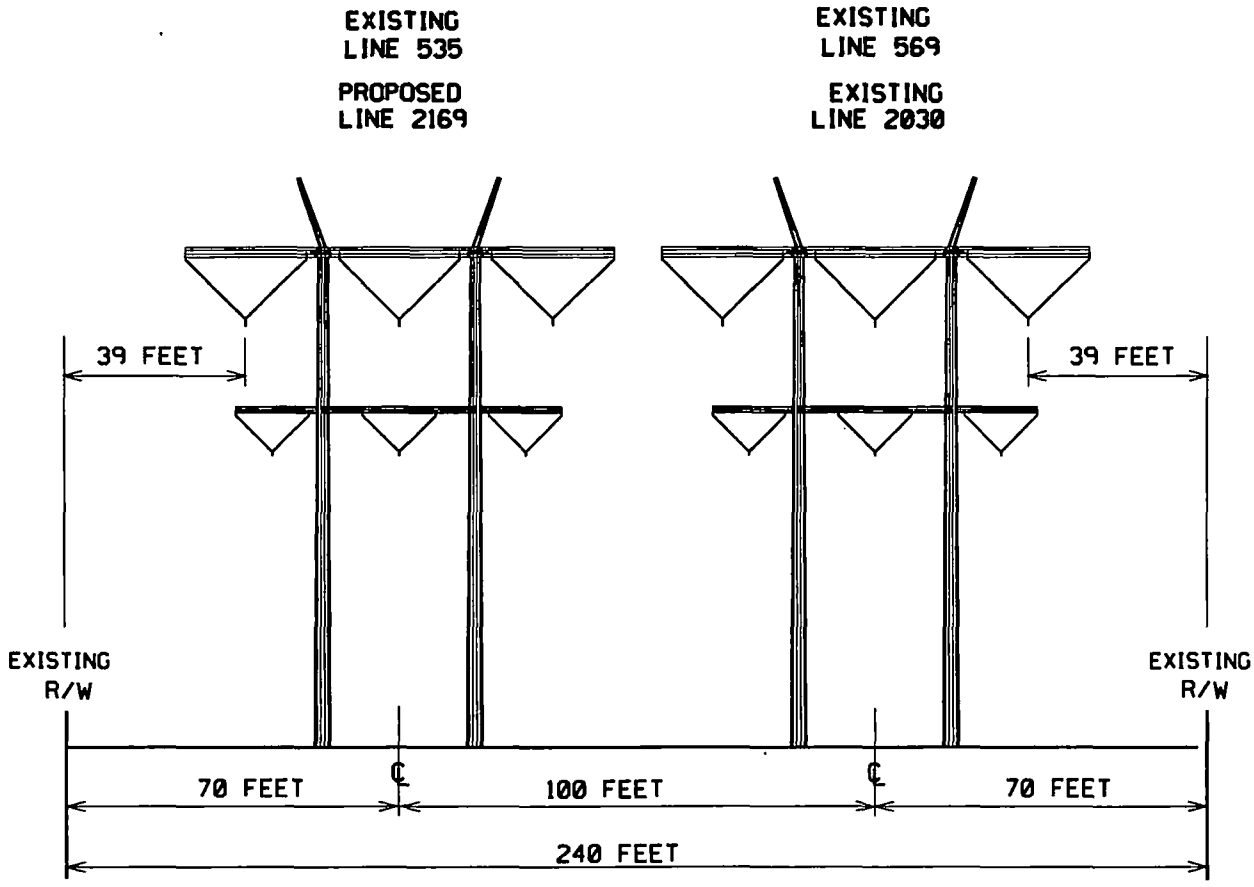


PROPOSED CONFIGURATION

TYPICAL RIGHT OF WAY LOOKING TOWARD HAYMARKET

TYPE OF STRUCTURE:	STEEL POLE
FOUNDATION :	CONCRETE
APPROXIMATE AVERAGE HEIGHT:	112 FEET
WIDTH AT CROSSARM:	26 FEET
WIDTH AT BASE:	4 FEET
APPROX. AVERAGE SPAN LENGTH:	593 FEET
CONDUCTOR TYPE:	ALUMINUM
RIGHT OF WAY WIDTH:	100 FEET
APPROXIMATE LENGTH OF LINE :	5.06 MILES

HAYMARKET JUNCTION - Str No 535/32



PROPOSED CONFIGURATION

TYPICAL RIGHT OF WAY LOOKING TOWARD LOUDOUN

TYPE OF STRUCTURE :	STEEL H-FRAME
FOUNDATION :	CONCRETE
APPROXIMATE AVERAGE HEIGHT :	119 FEET
WIDTH AT CROSSARM :	90 FEET
WIDTH AT BASE :	36 FEET
APPROX. AVERAGE SPAN LENGTH :	827 FEET
CONDUCTOR TYPE :	ALUMINUM
RIGHT-OF-WAY WIDTH :	240 FEET
APPROXIMATE LENGTH OF LINE :	2.05 MILES

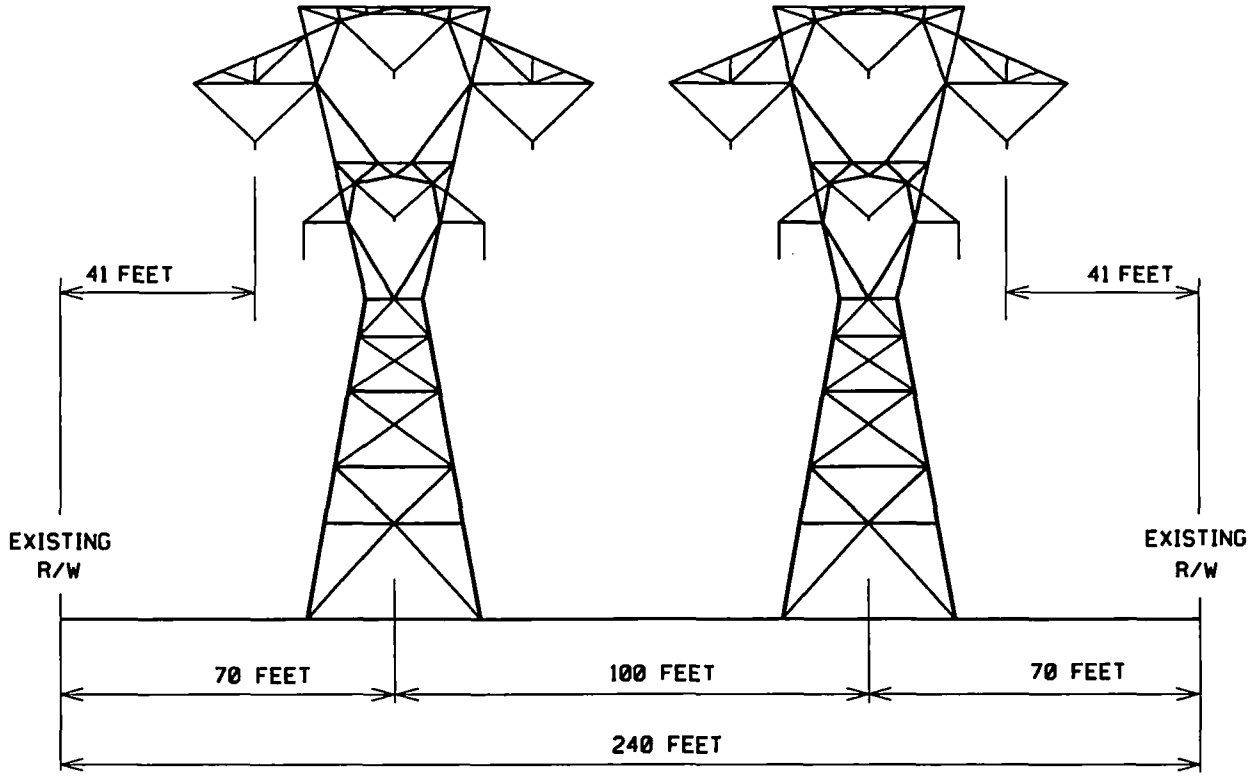
Str No 535/32 - LOUDOUN

EXISTING
LINE 535

PROPOSED
LINE 2169

EXISTING
LINE 569

EXISTING
LINE 2030



PROPOSED CONFIGURATION

TYPICAL RIGHT OF WAY LOOKING TOWARD LOUDOUN

TYPE OF STRUCTURE:	LATTICE STEEL TOWER
FOUNDATION :	CONCRETE
APPROXIMATE AVERAGE HEIGHT:	130 FEET
WIDTH AT CROSSARM:	84 FEET
WIDTH AT BASE:	40 FEET
APPROX. AVERAGE SPAN LENGTH:	1012 FEET
CONDUCTOR TYPE:	ALUMINUM
RIGHT OF WAY WIDTH:	240 FEET
APPROXIMATE LENGTH OF LINE :	5.22 MILES

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way (ROW)

4. Detail what portions of the ROW are subject to existing easements and over what portions easements will be needed.

Response: The Proposed Route, consisting of 5.1 miles of overhead facilities, is located adjacent to an existing interstate highway for approximately 4.5 miles and portions of the proposed right-of-way will be within VDOT rights-of-way by permit. New right-of-way on private property will require new easements.

The Proposed Route and the Railroad, Carver, Madison and I-66 Hybrid Alternative Routes utilize the same path for the first 2.2 miles, a majority of which encompasses VDOT rights-of-way. Additional right-of-way required for the Alternative Routes will be on private property and will therefore require new easements. If there is an opportunity to co-locate along an adjacent right-of-way such as a roadway, gas pipeline, railroad or existing transmission or distribution lines, then it may be possible for the Company to reduce the width of new right-of-way.

The work involved in converting existing Line #124 from 115 kV to 230 kV operations is entirely within existing right-of-way and will require minimal ground disturbance.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way (ROW)

5. Detail the proposed ROW clearing methods to be used and the ROW restoration and maintenance practices planned for the proposed project;

Response: The proposed transmission corridor will generally be 100 feet in width but may be narrowed in limited circumstances where required. The entire width of the proposed transmission corridor will need to be cleared and maintained for double circuit 230 kV transmission facility operation. Clearing of access roads will be necessary to support construction activities for the Project. For any such clearing, trees will be cut to no more than three inches above ground level. Trees located outside of the right-of-way that are tall enough to potentially impact the rebuilt transmission facilities, commonly referred to as danger trees, may also need to be removed. Danger trees will be cut to be no more than three inches above ground level, limbed and may remain in tree length where felled. Debris that is adjacent to businesses will be disposed of by chipping or removal. In other areas, debris may be mulched or chipped as practicable. Clearing will be accomplished by hand in wetland areas and within 100 feet of streams. Care will be taken not to leave debris in streams or wetland areas. Matting will be used for heavy equipment in these areas. Erosion control devices will be used on an ongoing basis during all clearing activities.

Erosion control will be maintained, and temporary stabilization for all soil disturbing activities will be used until the right-of-way has been restored. Upon completion of the rebuild project, the Company will restore the right-of-way utilizing site rehabilitation procedures outlined in the Company's *General Erosion and Sedimentation Control Specifications for the Construction and Maintenance of Electric Transmission Lines* that is approved annually by the Virginia Department of Environmental Quality. Time of year and weather conditions may affect when permanent stabilization takes place.

This right-of-way will continue to be maintained on a regular cycle to prevent interruptions to electric service and provide ready access to the right-of-way in order to patrol and make emergency repairs. Periodic maintenance to control woody growth will consist of hand cutting, machine mowing and herbicide application.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way (ROW)

6. Indicate the permitted uses of the ROW;

Response: Any non-transmission use will be permitted that:

- is in accordance with the terms of the easement agreement for the right-of-way;
- is consistent with the safe maintenance and operation of the transmission lines;
- will not restrict future line design flexibility; and
- will not permanently interfere with future construction.

Typical permitted uses, with conditions, of the rights-of-way include:

1) Agriculture
2) Nurseries
3) Bicycle trails
4) Parking lots
5) Other utility facilities
6) Recreational areas
7) Roadways
8) Fences with gates

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way (ROW)

7. Describe the Company's route selection procedures. Detail alternative routes considered. Describe the Company's efforts in considering these alternatives. Detail why the proposed route was selected and other alternatives were rejected.

Response: The Company's route selection for new transmission lines begins with creation of a study area to determine the possible extremes of routing a line between the point of origin and the termination point. Once a study area is determined, the land area is reviewed to determine if there are any existing rights-of-way possible with which to co-locate; these areas are considered routing "opportunities." This approach of co-location generally minimizes impacts to both the natural and human environment; is consistent with FERC Guideline #1, which states that existing rights-of-way should be given priority when adding new transmission facilities; and is consistent with §§ 56-46.1 and 56-259 of the Code of Virginia ("Va. Code"), both of which also promote the use of existing rights-of-way for new transmission facilities.

Concurrent with identifying co-location opportunities, sensitive environmental, political, or constructability-related features that may be considered routing constraints are identified in the study area.

After opportunities and constraints are mapped, the Company identifies buildable alternative routes, each of which meets the objective of the Project as well as siting criteria identified in the Code of Virginia and included in the Commission's Division of Energy Regulation *Guidelines of Minimum Requirements for Transmission Line Applications Filed Under Virginia Code Section 56-46.1 and The Utility Facilities Act.* After the potential routes were identified, the Company conducted an analysis using Geographic Information Systems ("GIS") to quantify potential impacts associated with constraints and the use of opportunities for each alternative. Crossings of sensitive features were measured and tabulated to facilitate route comparisons. Other factors such as visual and construction-related impacts were assessed based on the Company's experience in electric transmission route selection. A proposed route and alternative routes were then identified based on a comparison of advantages and disadvantages of each route. The process considered both the sensitivity and extent of the constraints affected relative to each route.

Following a preliminary quantitative assessment of route alternatives, the Company engaged the public, including elected officials, in discussions to gather feedback on the various routes. This feedback resulted in adjustments being made to optimize the potential routes. The alternative that maximizes opportunities and minimizes constraints is typically selected as the proposed

route. The route evaluation process is discussed in detail in the Environmental Routing Study.

For the proposed Project, early in the routing process, the Railroad Alternative Route was identified by the Company as a preferred alternative that could meet the need and seemed to be the route that would reasonably minimize adverse impacts. However, on December 11, 2014, the Prince William County Board of County Supervisors voted to approve the conveyance of a property interest by the property owner, a Home Owners' Association ("HOA") to Prince William County, rendering this alternative unable to be built without agreement by the County. The County has indicated to the Company that it will not permit an overhead transmission line to be constructed across its open space easement property interest as would be required for this routing alternative. See Attachment II.A.7.1. However, as the alternative route that impacts the least number of residences within 100 feet of the centerline (0 residences), the Company is including the Railroad Alternative Route for Commission consideration in the event agreement with Prince William County can be reached.

The Company is also presenting the following two potential adjustments to the Proposed Route: Jordan Lane Variation and Walmart Variation, shown in Attachment II.A.7.2.

Jordan Lane Variation – In contrast to the rest of I-66 that the Proposed Route parallels, approximately 675 feet of existing roadway along Jordan Lane within Haymarket Township was not established as VDOT right-of-way. This stretch of Jordan Lane near the eastern end currently remains a county road dedicated to the Town of Haymarket and Prince William County via Piedmont Mews, LLC subdivision. Dominion Virginia Power will work with these localities to negotiate an overhang easement within the dedicated road easement. However, in the event that these negotiations are unsuccessful, the Jordan Lane Variation would eliminate the need for the Company to obtain an easement from the Town of Haymarket or Prince William County. The Jordan Lane Variation would involve the location of one structure inside the proposed sound wall along I-66. The Company does not anticipate that this single structure will unnecessarily burden construction or operation of the transmission line or impede construction or vehicle operations within the existing I-66 right-of-way. This variation does not materially affect the length or impacts of the Proposed Route except to the extent it eliminates a crossing of the Jordan Lane dedicated road parcel.

Walmart Variation – The Company is also presenting the Walmart Variation to limit the amount of tree removal along John Marshall Highway (SR 55) across the frontage of the three parcels immediately east of the proposed Haymarket Substation location. The Walmart Variation would deviate from the Proposed Route just prior to the crossing of James Madison Highway (U.S. 15), proceeding behind several stores in Haymarket Village Center,

primarily Kohl's and Walmart. The route would generally follow the property line between the shopping center and VDOT right-of-way, adding an additional 0.1 mile to the Proposed Route's length. The route would generally follow the western edge of the shopping center property south with a short segment extending west before crossing John Marshall Highway (SR 55) and entering the proposed substation site. The Walmart Variation would be approximately 0.1 mile longer than the Proposed Route, cross one additional private parcel, and have 0.4 mile of co-location (compared to 0.5 mile of the Proposed Route). Although tree clearing would be higher along the variation (4.1 acres compared to 2.0 acres), the tree clearing required for the Walmart Variation would be less conspicuous to local traffic. There would be no tangible change to cultural resource impacts due to this variation.

COUNTY OF PRINCE WILLIAM

1 County Complex Court, Prince William, Virginia 22192-9201
(703)792-4640 Metro (703) 631-1703 cstewart@pwcgov.org

Corey A. Stewart
Chairman

BOARD OF COUNTY SUPERVISORS
Corey A. Stewart, Chairman
Maureen S. Caddigan, Vice Chairman
Peter K. Candland
John D. Jenkins
Jeanine M. Lawson
Michael C. May
Martin E. Nohe
Frank J. Principi

September 2, 2015

Mr. Thomas F. Farrell II
Chairman, President and Chief Executive Officer
Dominion Virginia Power
120 Tredegar Street
Richmond, VA 23219

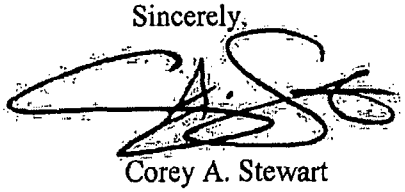
Dear Mr. Farrell,

During the August 4th Prince William Board of County Supervisors (BOCS) meeting, I made a directive to staff to draft a letter to be sent to the State Corporation Commission (SCC) informing them that the BOCS has every intention of defending any County property even if Dominion attempted to take it through eminent domain. I am informing you of this because I would like to give you notice before you file your application with the SCC that the Prince William BOCS plans to vigorously defend the Open-Space Easement that would be impacted by the proposed "Railroad Route."

In Dominion Power's most recent update of studied routes, Dominion removed several other possible routes for a multitude of reasons, which included historic and government property. Stated another way, Dominion took other routes off the proposed filing precisely because those routes implicated government properties and/or properties subject to easements. But it did not remove the "Railroad Route," which includes property subject to an Open-Space Easement granted by the owner to the Board of County Supervisors. The Prince William Board of County Supervisors would like to urge Dominion to remove this as a possible route prior to submitting your application with the SCC.

I would also like to reiterate our stance on the proposed Haymarket 230kV Line and Substation Project. The only route that the Prince William BOCS supports is the I-66 Hybrid Alternative. Thank you for your attention to this matter.

Sincerely,

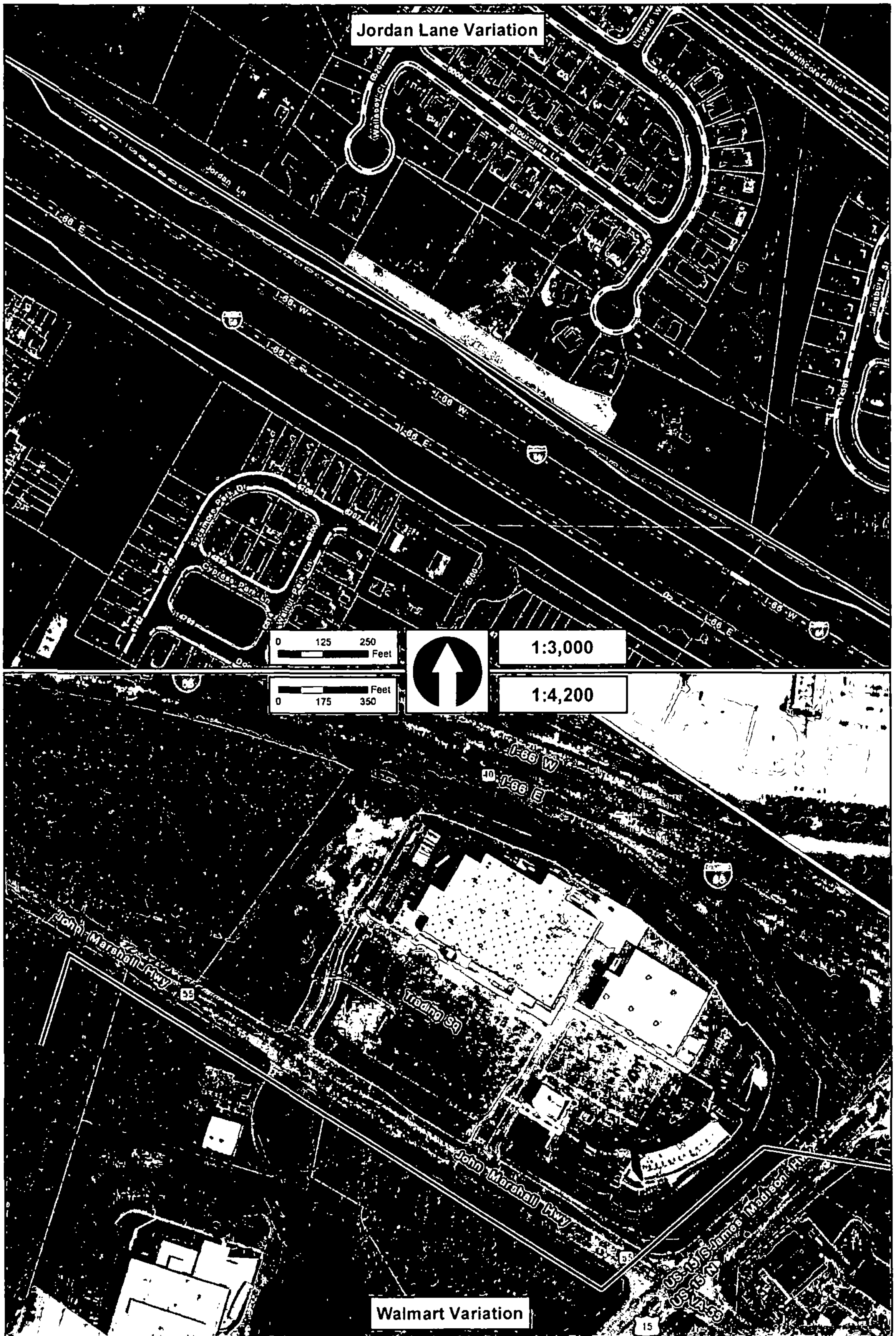


Corey A. Stewart

CC: Prince William Board of County Supervisors

Deborah T. Johnson, Dominion Virginia Power, Manager- Regional, State, and Local Affairs

151110206



I-66 Overhead Alternative
Route Variation
Parcel Boundary
Jordan Lane County-Owned Parcel

Appendix II.A.7.2
Gainesville to Haymarket 230kV
Transmission Line and Substation Project

Dominion

FILE: M:\Clients\D-F\DOM\Haymarket_ArcGIS\2015\11\Figures_DOM_HAY_Appendix_II_A_7_TwoImage.mxd | REVISED: 11/02/2015 | SCALE: 1:3,000 when printed at 11x17 DRAWN BY: 0239

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way (ROW)

8. Indicate how the construction of this transmission line complies with "Guidelines for the Protection of Natural, Historic, Scenic, and Recreational Values in the Design and Location of Rights-of-Way and Transmission Facilities" adopted by the Federal Power Commission in Order No. 414 issued November 27, 1970, and now applied by the Federal Energy Regulatory Commission. These guidelines may be found in Volume 44 of the Federal Power Commission Reports, page 1,491, or Volume 35 of the Federal Register, page 18,585 (December 8, 1970). Copies of the Guidelines may also be obtained from the Office of Public Information, Federal Energy Regulatory Commission, Washington, D.C. 20426. For reference purposes a copy of the guidelines is included.

Response: The FERC guidelines are a tool routinely used by the Company in routing its transmission line projects.

The Company utilized FERC Guideline #1 (existing rights-of-way should be given priority when adding additional facilities) by locating the Proposed Route parallel to various road rights-of-way (including I-66, University Boulevard, and U.S. 15) for about 4.5 miles.

Consistent with FERC Guideline #2, no National Register sites or landmarks are crossed by the Proposed Route or Alternative Routes.

FERC Guideline #4 encourages early contact with Government agencies, State agencies, or private organizations when transmission rights-of-way cross areas of land managed by such agencies. The Company has communicated with a number of local, state and federal agencies prior to filing this application (see Section III.B and the DEQ Supplement).

The Company follows FERC construction methods on a site specific basis for typical construction projects (Guidelines #8, 10, 11, 15, 16, 18 and 22).

The Company also utilizes FERC guidelines in the clearing of rights-of-way, constructing facilities and maintaining rights-of-way after construction. Moreover, secondary uses of rights-of-way that are consistent with the safe maintenance and operation of facilities are permitted.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way (ROW)

9. a. Detail counties and localities through which the line will pass. If any portion of the line will be located outside of the applicant's certificated service area: (1) advise of each electric utility affected; (2) whether any affected electric utility objects to such construction and (3) the length of line(s) proposed to be located in the service area of an electric utility other than the applicant;

b. Provide three (3) copies of the Virginia Department of Transportation "General Highway Map" of each county and city through which the line will pass. On the maps show the proposed line and all previously approved and certificated facilities of the applicant. Also where the line will be located outside of the applicant's certificated service area; show the boundaries between the applicant and each affected electric utility. On each map showing the line outside of the applicant's certificated service area, have the appropriate individual of the affected electric utility sign if his/her company is not opposed to the proposed construction.

Response: a. The Proposed Route, I-66 Hybrid and Railroad Alternatives are located in Prince William County and the Town of Haymarket limits. Carver and Madison Alternative Routes are located entirely within Prince William County limits. Line #124 to be converted as part of the Project is located entirely within NOVEC's service territory in Prince William and Loudoun Counties.[16] Line #124 has a length of 9.2 miles in Prince William County and 0.4 mile in Loudoun County.

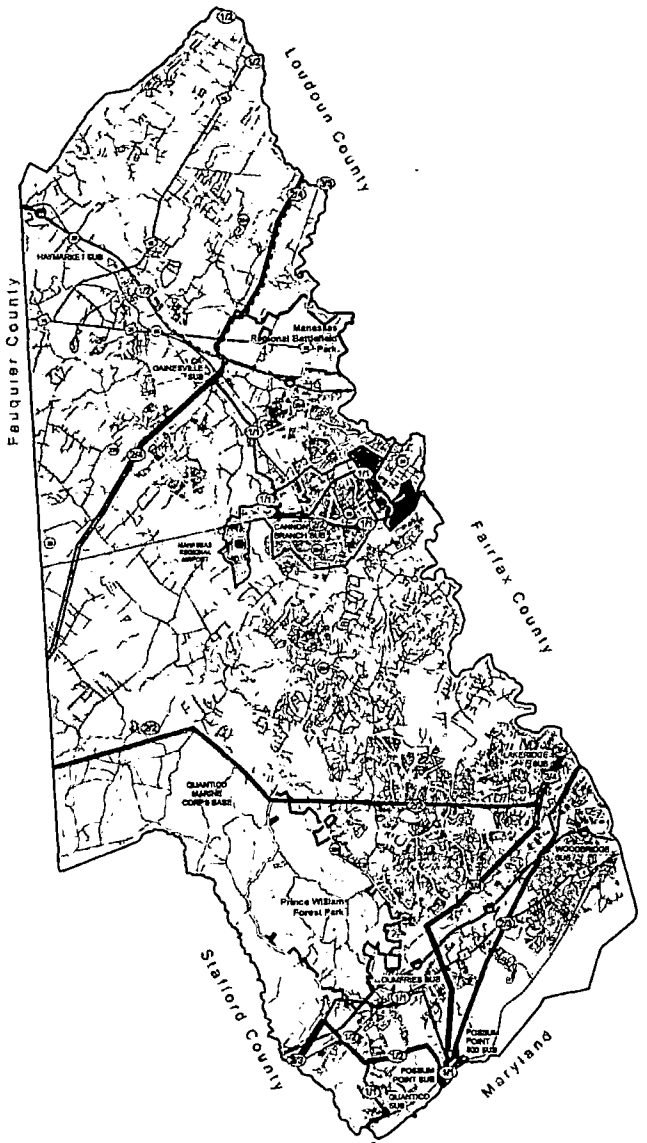
The length (miles) of the Proposed and Alternative Routes (excluding the conversion of Line #124) located in the Company's and in NOVEC's service territories are as follows:

	Dominion Virginia Power	NOVEC
Proposed Route	4.5 miles in Pr William	0.6 mile in Pr William
Carver Alternative Route	4.1 miles in Pr William	2.6 miles in Pr William
Madison Alternative Route	4.1 miles in Pr William	4.1 miles in Pr William
I-66 Hybrid Alternative Route	4.7 miles in Pr William	0.6 mile in Pr William
Railroad Alternative Route	4.4 miles in Pr William	1.3 miles in Pr William

[16] The conversion of Line #124 involves minimal ground disturbance activities described in Section I.D.

Prince William County Road Map

This digital map depicts the Virginia Electric and Power Company ("Dominion") transmission facilities at this county as approved by the Virginia State Corporation Commission ("SCC"), and any proposed transmission facilities in this County as of _____. Other Company facilities previously authorized by the SCC may be depicted on prior SCC approved county maps.



55

*EXISTING NOVEC LINE TO BE PURCHASED BY VIRGINIA ELECTRIC AND POWER COMPANY

VIRGINIA ELECTRIC AND POWER COMPANY PLANS TO BUILD TRANSMISSION LINES AND SUBSTATIONS AS SHOWN IN BLACK DASHES ON THIS MAP

NORTHERN VIRGINIA ELECTRIC COOPERATIVE IS NOT OPPOSED TO SUCH CONSTRUCTION IN ITS SERVICE TERRITORY

SIGNATURE [signature] DATE 10/7/15 TITLE VICE PRESIDENT

Legend

- Proposed 230 kV Line
- Number of Lines of Structures/Number of Circuits
- Existing Substation
- Proposed Substation
- 115 kV
- 230 kV
- 500 kV
- City of Manassas Park
- City of Manassas
- Manassas Regional Airport
- Manassas Regional Battlefield Park
- Prince William County Forest
- Quantico Marine Corps Base

Provider Service Territory

- NOVEC
- VEPCO

Miles
2 1 0 2 4 6

*VDOT and other road data obtained from ESRI, current as of May 2012.

Prince William

Attachment II.A.9.b.2

Loudoun County Road Map

This digital map depicts the Virginia Electric and Power Company ("Company") transmission facilities in the county as approved by the Virginia State Corporation Commission ("SCC"), and any proposed transmission facilities in this county, as of _____. Other Company facilities previously authorized by the SCC may be depicted on prior SCC approved county maps.

VIRGINIA ELECTRIC AND POWER COMPANY PLANS TO BUILD TRANSMISSION LINES AND SUBSTATIONS AS SHOWN IN BLACK DASHES ON THIS MAP.

NORTHERN VIRGINIA ELECTRIC COOPERATIVE IS NOT OPPOSED TO SUCH CONSTRUCTION IN ITS SERVICE TERRITORY.

SIGNATURE _____

DATE 10/12/15 TITLE VICE PRESIDENT

Legend

- Proposed Line
- Number of Lines of Structures/Number of Circuits
- Proposed Substation
- Existing Substation
- 115 kV
- 230 kV
- 500 kV

Provider Service Territory

- NOVEC
- VEPCO

Miles
2 1 0 2 4 6

*VDOT and other road data obtained from ESRI and County data, current as of December 2012.

Loudoun

56

15111020 6

NOVEC does not object to construction of a Dominion Virginia Power line in their service territory.

b. Three copies of the Virginia Department of Transportation "General Highway Map" of Prince William County and Loudoun County are marked as required and filed with the Application in this case. Attachments II.A.9.b.1 and II.A.9.b.2 are reduced copies of those maps.

II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

1. Detail number of circuits and their design voltage and transfer capabilities.

Response: The Project will include converting existing 115 kV Line #124 between Gainesville Substation and Loudoun Station to 230 kV operation and then looping the converted line in and out of the proposed Haymarket Substation. This will result in a Gainesville-Haymarket 230 kV Line #2176 with a transfer capability of 1047 MVA and a Haymarket-Loudoun 230 kV Line #2169 with a transfer capability of 1047 MVA.

Between Haymarket Junction and Haymarket Substation, the two proposed 230 kV circuits will each have a transfer capability of 1225 MVA.

Between Gainesville Substation and Haymarket Junction, the converted 230 kV line will have a transfer capability of 1047 MVA.

Between Haymarket Junction and Loudoun Station, the converted 230 kV line will have a transfer capability of 1047 MVA.

II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

2. Detail number, size(s), type(s), and typical configurations of conductors;

Response: Between Haymarket Junction and Haymarket Substation, the two proposed 230 kV circuits will each have three twin-bundled 795 ACSR 26/7 phase conductors arranged vertically as shown in Attachment II.A.3.d.

Between Gainesville Substation and Haymarket Junction the existing twin-bundled 636 ACSR 24/7 is arranged horizontally as shown in Attachment II.A.3.c.

Between Haymarket Junction and Loudoun Station, the existing twin-bundled 636 ACSR 24/7 is arranged horizontally as shown in Attachments II.A.3.e and f.

II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

3. With regard to the proposed supporting structures over each portion of the ROW provide:

a. types of structures;

b. length of ROW with each type of structure;

c. material for typical structure (steel, oxidizing steel, etc.);

d. foundation material;

e. width at cross arms of typical structure;

f. width at base of typical structures;

g. typical span length;

h. approximate average heights of structures;

i. a schematic drawing of each typical structure; and

j. minimum conductor-to-ground clearance under maximum operating conditions

Company Proposed Route

Response:

Attachment II.A.3.c

a. Structure type — Steel 3-Pole

b. ROW length — approximately 0.48 mile

c. Structure material — Galvanized Steel

d. Foundation material — Concrete

e. Cross arm width of typical structure — 85 feet

f. Base width of typical structure — 74 feet

g. Average span length — 876 feet

h. Approximate average structure height — 120 feet

i. Typical structure — see Attachment II.A.3.c

j. Minimum clearance over ground — 22.5 feet

Attachment II.A.3.d

a. Structure type — Steel Pole

b. ROW length — approximately 5.06 miles

c. Structure material — Galvanized Steel

d. Foundation material — Concrete

e. Cross arm width of typical structure — 26 feet

f. Base width of typical structure — 4 feet

g. Average span length — 593 feet

h. Approximate average structure height — 112 feet

i. Typical structure — see Attachment II.A.3.d

j. Minimum clearance over ground — 22.5 feet

Attachment II.A.3.e

a. Structure type — Steel H-Frame

b. ROW length — approximately 2.05 miles

c. Structure material — Galvanized Steel

d. Foundation material — Concrete

e. Cross arm width of typical structure — 90 feet

f. Base width of typical structure — 36 feet

g. Average span length — 827 feet

h. Approximate average structure height — 119 feet

i. Typical structure — see Attachment II.A.3.e

j. Minimum clearance over ground — 22.5 feet

Attachment II.A.3.f

a. Structure type — Lattice Steel Tower

b. ROW length — approximately 5.22 miles

c. Structure material — Galvanized Steel

d. Foundation material — Concrete

e. Cross arm width of typical structure — 84 feet

f. Base width of typical structure — 40 feet

g. Average span length — 1012 feet

h. Approximate average structure height — 130 feet

i. Typical structure — see Attachment II.A.3.f

j. Minimum clearance over ground — 22.5 feet

II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

4. Describe why the proposed structure type(s) was selected for this line.

Response: The proposed structure will allow the installation of two 230 kV circuits in the proposed 100-foot right-of-way. The single shaft steel pole will minimize the footprint of the structure.